United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
West Virginia Agricultural
and Forestry Experiment
Station and West Virginia
Conservation Agency

Soil Survey of Jackson and Mason Counties, West Virginia

How To Use This Soil Survey

General Soil Map

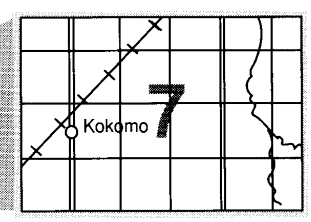
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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

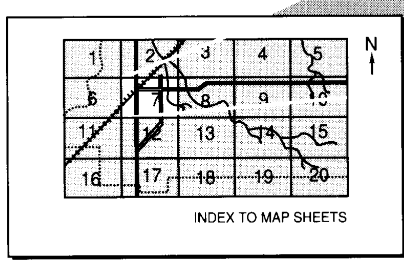
Detailed Soil Maps

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

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

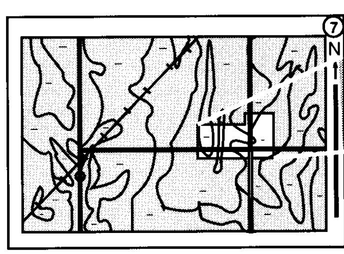


MAP SHEET



INDEX TO MAP SHEETS

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



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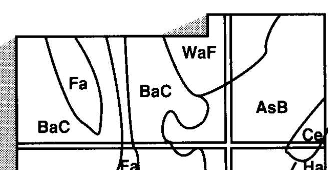

AREA OF INTEREST

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

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 2003. Soil names and descriptions were approved in 2005. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. This survey was made cooperatively by the Natural Resources Conservation Service, the West Virginia Agricultural and Forestry Experiment Station, and the West Virginia Conservation Agency. The survey is part of the technical assistance furnished to the Western Conservation District.

Cover: A pastured area of Ashton silt loam, 0 to 3 percent slopes, rarely flooded, in Mason County. This soil is considered to be prime farmland. Silver Bridge, which crosses the Ohio River, is in the 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 March 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.

Kevin J. Wickey
State Conservationist
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Soil Survey of Jackson and Mason Counties, West Virginia

By Timothy A. Dilliplane, Natural Resources Conservation Service

Fieldwork by Timothy A. Dilliplane, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the West Virginia Agricultural and Forestry Experiment Station
and the West Virginia Conservation Agency

Jackson and Mason Counties are located along the western border of West Virginia (fig. 1). Jackson County has a total area of 301,600 acres, including 5,000 acres of water, and Mason County has a total area of 284,900 acres, including 8,000 acres of water. In 2000, the population of Jackson County was 28,000, while the population of Mason County was 25,957 (Bureau of the Census n.d.). The major enterprises in the survey area are farming, the timber industry, power plants, metal and chemical plants, and the public school systems.

This soil survey updates the survey of Jackson and Mason Counties published in 1961 (Gorman and Rayburn 1961). It provides a more modern photobase and updated soil maps and soil names, as well as more comprehensive soil interpretations for multiple land uses.

General Nature of the Survey Area

This section describes settlement, farming, transportation facilities, relief and drainage, geology, and climate in the survey area.

Settlement

The first inhabitants of Jackson and Mason Counties were Native Americans that used the fertile Ohio and Kanawha River valleys for both seasonal and permanent campsites (Ferguson 1983). While many areas have probably been overlaid by years

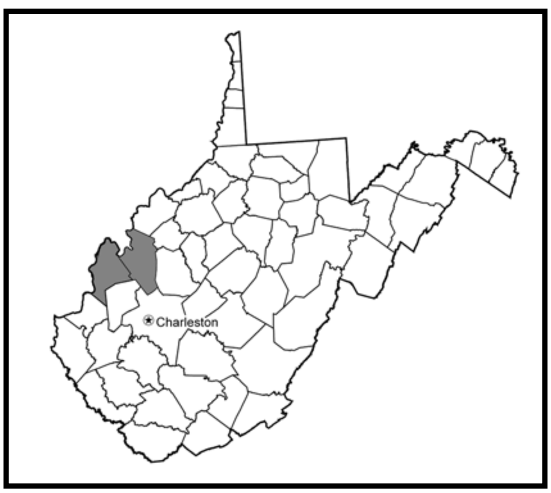

Figure 1.—Location of Jackson and Mason Counties in West Virginia.

of river sediments and floodwaters, evidence of this early occupation is found in the countless artifacts that have been collected and are still overturned by cultivation practices today. Burial mounds also exist in a few areas along both rivers.

The first European inhabitant was probably the French explorer LaSalle, who reportedly visited this area in 1669 (Ferguson 1983). Dutch, French, and English fur traders traveled and inhabited this part of the Ohio River valley as early as the 1690s. In 1749, Celoron de Blande led a French expedition down the Ohio River. With the burial of four lead plates, including one at the mouth of the Kanawha River, he claimed the entire area for France. The first overland explorer was Englishman Christopher Gist, who investigated the area in the interest of the Ohio Land Company (Jackson County History Book Committee 1990).

George Washington was a known visitor to the area as early as 1770. Washington kept a detailed diary in which he noted the beauty of the landscape and the rivers. He also recorded a prediction in his journal that the area would become a prominent place in the growing English colonial world. He named the area at the junction of the Ohio and Kanawha Rivers “pleasant point” and began a survey, later completed by Colonel William Crawford, of “the point” and the surrounding area (Ferguson 1983). Unfortunately, early settlers and American Indians clashed at this same point in October 1774. The Virginia militia, under the command of Colonel Andrew Lewis, battled the Indian Confederacy, led by Chief Cornstalk, and never again did the Indian tribes venture in strength east of the Ohio River (Ferguson 1983).

Jackson County was established in 1831 and was named in honor of Andrew Jackson, a military hero and U.S. President (Jackson County History Book Committee 1990). Mason County was established in 1804 and was named in honor of George Mason, who was author of the Constitution of Virginia and a member of the U.S. Constitutional Convention (Ferguson 1983).

Farming

In 1997, Mason County had 742 farms and a total of 120,561 acres of farmland. The average size of the farms was 162 acres per farm (USDA NASS 1999). Jackson County had 730 farms and a total of 116,677 acres of farmland. Although both counties have shown an increase in the number of farms since 1992, the average size of the farms has remained the same.

The main agricultural enterprises in Jackson and Mason Counties are beef cattle and hay and pasture production. Dairy farms and cultivated crop production are mainly limited to the Upper Flats area of Mason County and the two major river valleys (fig. 2). The main crops include corn, soybeans, wheat, and hay. Burly tobacco also is grown, mainly south of the Kanawha River.

Transportation Facilities

Transportation needs are served by U.S. Highways 33 and 35 and State Route 2 in Jackson and Mason Counties and by I-77 in Jackson County. Each county has its own airport, and railroad lines and river barges are used to transport commodities in both counties.

Relief and Drainage

Jackson and Mason Counties lie within the Central Allegheny Plateau major land resource area. Elevation in the survey area ranges from 500 feet above tide at the southwest corner of the Ohio River in Mason County to 1,260 feet at the top of Garnes Knob in the southern part of Jackson County. Most of the topography consists of nearly level to moderately steep ridgetops and steep and very steep side slopes.

Figure 2.—With two major river valleys in the survey area, Jackson and Mason Counties have some of the highest agricultural production in the State of West Virginia. Shown are soybeans in areas of the Ashton and Gallipolis soils in the foreground and pastured areas of Vandalia soils and wooded areas of Gilpin and Peabody soils in the background.

Many side slopes contain one or more narrow benches, hence the term “bench-break topography.” The two major river valleys consist of nearly level to strongly sloping areas, typically in long bands that follow the river or stream channel. Nonflooding terraces, some representing streams that no longer exist, are relatively broad, gently sloping to strongly sloping areas in the Upper Flats area of Mason County and in the Cottageville-Ravenswood area of Jackson County. Most evidence of terrace deposits disappear at elevations of more than 800 feet.

Both counties lie entirely within the Ohio River drainage. Major tributaries include the Kanawha River in Mason County and Mill and Sandy Creeks in Jackson County.

Geology

Jeff McClure, state geologist, Natural Resources Conservation Service, helped to prepare this section.

In Jackson and Mason Counties, the surface rocks, with the exception of the Quaternary alluvial deposits along valley floors, are of the Permian and Pennsylvanian Periods of the Paleozoic Era (Cardwell, Erwin, and Woodward 1986). All of the rock outcrops consist of sedimentary rocks. Each series of rocks in the Ohio River valley rests upon a continuous sheet of rocks of the next older series, with the Dunkard Group being the youngest in Jackson and Mason Counties. The next oldest group is the Monongahela Group followed by the Conemaugh Group (Cross and Schemel 1956).

The Parkersburg Syncline is the only significant structure expressed in the near surface strata in Jackson and Mason Counties. Generally, one-third of Jackson County is west of the Parkersburg Syncline and two-thirds is east of the structure. The syncline also crosses the southeastern corner of Mason County. The rocks dip gently towards the axis of the Parkersburg Syncline in both counties, with slopes of

15 to 35 feet per mile. In one small area of Mason County, the rock dips about 125 feet per mile, and in the southeastern part of Jackson County, it dips about 50 feet per mile (Krebs 1911).

Mason County is on the southwestern edge of the Dunkard Basin. The basin is elliptical in nature and extends in a northeasterly direction from Mason and Putnam Counties into the extreme southwestern part of Pennsylvania (Cardwell, Erwin, and Woodward 1986). The surface strata of this basin are generally made up of outcroppings of Dunkard Group rocks. The Monongahela Group strata are exposed in a narrow belt completely around the edge of this elliptical outline of the Dunkard Group (Cross and Schemel 1956). The Conemaugh Group outcrops at the margins of the Monongahela Group and is near the Gallipolis Bend of the Ohio River where the strata can be seen in areas on the lower hillsides that follow the drainageways.

The eastern third of Mason County and all but the very southeastern corner of Jackson County are underlain by interbedded sandstone and predominantly red shale of the Dunkard Group outcrop in the Dunkard Basin. The western two-thirds of Mason County is underlain by interbedded sandstone, predominantly red shale, and coal outcrops from the Monongahela Group with outliers of lower Dunkard Group strata on many of the ridgetops. The extreme western part of Mason County at the margin of the Monongahela Group is underlain by interbedded sandstone and predominantly red shale of the Conemaugh Group (Cross and Schemel 1956). In the southeastern corner of Jackson County, the Monongahela Group is exposed at the surface. This is due to the gradual rise of the strata on the southeast flank of the Parkersburg Syncline.

The Dunkard, Monongahela, and Conemaugh Groups are the parent material of the Gilpin and Upshur soils and their related complexes. The dominant soils in the survey area are those in the Gilpin and Upshur series. Omulga and Gallia soils are typically the dominant soils associated with the high terraces, which were formed by interglacial and postglacial alluvial processes, while Ashton, Wheeling, and Lakin soils are dominant in areas on the bottom lands and terraces along the Ohio River.

Climate

Table 1 gives data on temperature and precipitation for Jackson County as recorded at Ripley and for Mason County as recorded at Hogsett Gallipolis Dam 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. Thunderstorm days, relative humidity, percentage of sunshine, and wind information are estimated from data collected at Charleston for Jackson County and at Huntington for Mason County.

In winter at Ripley, the average temperature is 34.8 degrees F and the average daily minimum temperature is 24.3 degrees. The lowest temperature on record, which occurred on January 19, 1994, is -28 degrees. In summer, the average temperature is 73.0 degrees and the average daily maximum temperature is 85.4 degrees. The highest recorded temperature, which occurred on July 16, 1988, is 107 degrees.

In winter at Hogsett Gallipolis Dam, the average temperature is 33.5 degrees F and the average daily minimum temperature is 23.3 degrees. The lowest temperature on record, which occurred on January 19, 1994, is -24 degrees. In summer, the average temperature is 72.7 degrees and the average daily maximum temperature is 84.7 degrees. The highest recorded temperature, which occurred on July 15, 1954, is 104 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation in Ripley is 44.98 inches. Of this, 23.98 inches, or 53 percent, usually falls in May through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in May through October is less than 13.5 inches. The heaviest 1-day rainfall during the period of record was 6.80 inches on June 28, 1998.

The total annual precipitation at Hogsett Gallipolis Dam is 41.02 inches. Of this, 24.89 inches, or 61 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 October is less than 13.99 inches. The heaviest 1-day rainfall during the period of record was 4.78 inches on September 18, 2004.

The average seasonal snowfall is about 18 inches in Ripley. The greatest snow depth at any one time during the period of record was 35 inches on January 30, 1977. On the average, 18 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 11.5 inches recorded on January 23, 1966.

The average seasonal snowfall is about 10 inches at Hogsett Gallipolis Dam. The greatest snow depth at any one time during the period of record was 20 inches. On the average, 15 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 20 inches. It was recorded on March 14, 1993, during the “Storm of the Century.”

The average relative humidity in midafternoon is about 54 percent at Charleston and about 58 percent at Huntington. Humidity is higher at night, and the average at dawn is about 85 percent at Charleston and 83 percent at Huntington. The sun shines 61 percent of the time possible in summer and 34 percent in winter at Charleston and Huntington. The prevailing wind is from the west-southwest at Charleston and from the southwest at Huntington. Average windspeed in both cities is highest in March. It is about 3.0 miles per hour at Charleston and 8.0 miles per hour at Huntington. Thunderstorms occur on about 42 days each year at Charleston and 40 days at Huntington. Most of the thunderstorms in both cities occur in July.

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.

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

General Soil Map Units

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

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

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

1. Gallipolis-Wheeling-Chavies-Ashton

Dominantly very deep, nearly level and gently sloping, moderately well drained and well drained soils; on terraces along the Ohio River

Setting

Location in the survey area: Along the Ohio River
Landscape position: River terraces
Slope: Dominantly 0 to 8 percent, but ranges from 0 to 25 percent

Composition

Extent of map unit in the survey area: 5 percent
Composition of map unit:
Gallipolis soils—10 percent
Wheeling soils—10 percent
Chavies soils—10 percent
Ashton soils—10 percent
Minor soils—60 percent (including Udorthents and Melvin, Lakin, Lindside, Huntington, and other less prevalent soils)

Soil Properties and Qualities

Gallipolis
Surface layer: Dark grayish brown silt loam
Subsoil: Upper part—yellowish brown silty clay loam; lower part—brown silty clay loam and silt loam with common grayish brown or light brownish gray iron depletions
Substratum: Brown silty clay loam with common grayish brown iron depletions
Depth to bedrock: More than 65 inches
Depth class: Very deep

Drainage class: Moderately well drained
Depth to a seasonal high water table: 24 to 40 inches
Slope: 0 to 8 percent
Parent material: Silty alluvium

Wheeling
Surface layer: Dark grayish brown silt loam
Subsurface layer: Yellowish brown and dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown silt loam; lower part—brown sandy loam
Substratum: Stratified brown loamy sand and sandy loam
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 0 to 15 percent
Parent material: Loamy alluvium over glacial outwash

Chavies
Surface layer: Dark yellowish brown fine sandy loam
Subsoil: Yellowish brown and strong brown fine sandy loam and loamy sand
Substratum: Dark yellowish brown sand
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 40 inches
Slope: 0 to 15 percent
Parent material: Loamy alluvium over glacial outwash

Ashton
Surface layer: Very dark grayish brown silt loam
Subsoil: Brown silt loam and strong brown silty clay loam
Substratum: Brown silt loam and thin layers of loam and sandy loam
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 40 inches
Slope: 0 to 8 percent
Parent material: Silty alluvium

Use and Management

Uses: Cropland, hayland, pasture, and small areas of urban development

Cropland
Suitability: Well suited in most areas
Management considerations:
- Gallipolis soils have a seasonal high water table.
- Ashton soils are subject to rare periods of flooding, mainly in the winter months.
- Some of the minor soils have a seasonal high water table and are subject to flooding.

Pasture and Hayland
Suitability: Well suited in most areas
Management considerations:
- Gallipolis soils have a seasonal high water table.
- Ashton soils are subject to rare periods of flooding, mainly in the winter months.
- Some of the minor soils have a seasonal high water table and are subject to flooding.

Woodland

Management considerations:

- Only a small acreage of this map unit is wooded.
- Most of the woodland is in the steeper sloping areas that are long and narrow in shape.

Urban Development

Suitability: Wheeling and Chavies—well suited; Ashton and Gallipolis—limited

Management considerations:

- Gallipolis soils have a seasonal high water table.
- Ashton soils are subject to rare periods of flooding.
- The layers of soil material in the substratum of the Wheeling and Chavies soils have a poor wastewater filtering capacity.
- Some of the minor soils have a seasonal high water table and are subject to flooding.

2. Melvin-Elk-Lindside-Gallipolis

Very deep, nearly level and gently sloping, poorly drained, moderately well drained, and well drained soils; on flood plains and terraces along the Kanawha River

Setting

Location in the survey area: Along the Kanawha River
Landscape position: Flood plains and terraces
Slope: Dominantly 0 to 8 percent

Composition

Extent of map unit in the survey area: 2 percent
Composition of map unit:
Melvin soils—15 percent
Elk soils—12 percent
Lindside soils—11 percent
Gallipolis soils—11 percent
Minor soils—51 percent (including Ginat, Huntington, Ashton, Chagrin, Taggart, and other less prevalent soils)

Soil Properties and Qualities

Melvin

Surface layer: Brown silt loam with dark grayish brown iron depletions and strong brown iron concentrations
Subsoil: Upper part—dark grayish brown silt loam with strong brown iron accumulations; lower part—gray and grayish brown silty clay loam with strong brown iron accumulations
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Poorly drained
Seasonal high water table: Within a depth of 12 inches
Slope: 0 to 3 percent
Parent material: Silty alluvium

Elk

Surface layer: Brown silt loam
Subsoil: Strong brown, brown, and dark yellowish brown silty clay loam and silt loam
Substratum: Dark yellowish brown silt loam
Depth to bedrock: More than 65 inches

Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 40 inches
Slope: 0 to 8 percent
Parent material: Silty alluvium

Lindside
Surface layer: Dark brown silt loam
Subsoil: Upper part—dark yellowish brown silt loam; lower part—brown silt loam with grayish brown iron depletions
Substratum: Brown silty clay loam with light brownish gray iron depletions
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Moderately well drained
Depth to a seasonal high water table: 18 to 36 inches
Slope: 0 to 3 percent
Parent material: Silty alluvium

Gallipolis
Surface layer: Dark grayish brown silt loam
Subsoil: Upper part—yellowish brown silty clay loam; lower part—brown silty clay loam and silt loam with common grayish brown or light brownish gray iron depletions
Substratum: Brown silty clay loam with common grayish brown iron depletions
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Moderately well drained
Depth to a seasonal high water table: 24 to 40 inches
Slope: 0 to 8 percent
Parent material: Silty alluvium

Use and Management

Uses: Cropland, hayland, and pasture

Cropland
Suitability: Melvin—suited if previously drained; Elk—well suited; Lindside and Gallipolis—suited
Management considerations:
- Melvin, Lindside, and Gallipolis soils have a seasonal high water table.
- Melvin soils are subject to very brief periods of ponding in some areas.
- Flooding, which occurs rarely, is a management concern.

Pasture and Hayland
Suitability: Melvin, Lindside, and Gallipolis—suited; Elk—well suited
Management considerations:
- Melvin, Lindside, and Gallipolis soils have a seasonal high water table.
- Melvin soils are subject to very brief periods of ponding in some areas.
- Flooding, which occurs rarely, is a management concern.

Woodland
Management considerations:
- Only a small acreage of this map unit is wooded.
- Most of the woodland is in the steeper sloping areas that are long and narrow in shape.

Urban Development
Suitability: Melvin—unsuited; Elk, Lindside, and Gallipolis—limited

Management considerations:
- Melvin, Lindside, and Gallipolis soils have a seasonal high water table.
- Melvin soils are subject to very brief periods of ponding in some areas.
- Flooding, which occurs rarely, is a management concern.

3. Gilpin-Peabody

Moderately deep, moderately steep to very steep, well drained soils formed in residuum; on uplands

Setting

Location in the survey area: Southern and central parts of Mason County, south of the Kanawha River, and the extreme southern part of Jackson County
Landscape position: Ridgetops, benches, and side slopes
Slope: Dominantly 15 to 65 percent, but ranges from 8 to 65 percent

Composition

Extent of map unit in the survey area: 28 percent
Composition of map unit:
Gilpin soils—38 percent
Peabody soils—12 percent
Minor soils—50 percent (including Upshur, Sensabaugh, Vandalia, Coolville, Tilsit, and other less prevalent soils)

Soil Properties and Qualities

Gilpin
Surface layer: Very dark grayish brown silt loam
Subsurface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown channery silt loam; lower part—strong brown channery silt loam and channery loam
Bedrock: Yellowish brown, fine grained sandstone and siltstone at a depth of 30 inches
Depth class: Moderately deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 15 to 65 percent
Parent material: Fine grained sandstone and siltstone

Peabody
Surface layer: Dark brown silt loam
Subsoil: Dark reddish brown silty clay, channery clay, and channery silty clay
Bedrock: Interbedded yellow siltstone and fine grained sandstone at a depth of 23 inches
Depth class: Moderately deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 35 to 65 percent
Parent material: Dominantly interbedded yellow siltstone, fine grained sandstone, and thin bands of red clay shale

Use and Management

Uses: Pasture, hayland, and woodland

Cropland
Suitability: Limited

Management considerations:
- The slope and the severe or very severe hazard of erosion are management concerns.
- Cultivation should be restricted to less sloping areas and to areas of minor soils on ridgetops, footslopes, alluvial fans, or flood plains.

Pasture and Hayland
Suitability: Suited on slopes of less than 25 percent; limited on slopes of 25 to 35 percent; unsuited on slopes of more than 35 percent
Management considerations:
- The slope and overgrazing are management concerns.

Woodland
Management considerations:
- Peabody soils have more restrictions affecting haul roads and landings.
- The slope and the rock outcrop in some of the steeper areas are management concerns.

Urban Development
Suitability: Limited
Management considerations:
- Peabody soils have a high shrink-swell potential and slow permeability.
- The slope and the depth to bedrock are management concerns.

4. Moshannon-Senecaville-Hackers

Dominantly very deep, nearly level, well drained and moderately well drained soils; on flood plains and terraces

Setting

Location in the survey area: Along major tributaries of the Ohio and Kanawha Rivers
Landscape position: Flood plains and low terraces
Slope: Dominantly 0 to 3 percent, but ranges up to 15 percent

Composition

Extent of map unit in the survey area: 3 percent
Composition of map unit:
Moshannon soils—31 percent
Senecaville soils—12 percent
Hackers soils—7 percent
Minor soils—50 percent (including Shircliff, McGary, Zoar, and other less prevalent soils)

Soil Properties and Qualities

Moshannon
Surface layer: Brown silt loam
Subsoil: Reddish brown and dark reddish brown silt loam
Substratum: Upper part—dark reddish brown silt loam; lower part—reddish brown silty clay loam
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 48 inches
Slope: 0 to 3 percent
Parent material: Silty alluvium

Senecaville
Surface layer: Reddish brown silt loam
Subsoil: Reddish brown silt loam with pinkish gray iron depletions
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Moderately well drained
Depth to a seasonal high water table: 18 to 36 inches
Slope: 0 to 3 percent
Parent material: Silty alluvium

Hackers
Surface layer: Dark brown silt loam
Subsoil: Upper part—reddish brown silt loam; lower part—yellowish red silty clay loam
Substratum: Reddish brown silt loam
Depth to bedrock: More than 65 inches
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 0 to 8 percent
Parent material: Silty alluvium

Use and Management

Uses: Cropland, hayland, pasture, and small areas of urban development

Cropland
Suitability: Moshannon and Senecaville—suited; Hackers—well suited
Management considerations:
- Moshannon and Senecaville soils are subject to flooding throughout the year.
- Senecaville soils have a seasonal high water table.

Pasture and Hayland
Suitability: Moshannon and Senecaville—suited; Hackers—well suited
Management considerations:
- Moshannon and Senecaville soils are subject to flooding throughout the year.
- Senecaville soils have a seasonal high water table.

Woodland
Management considerations:
- Only a small acreage of this map unit is wooded.

Urban Development
Suitability: Moshannon and Senecaville—poorly suited; Hackers—limited
Management considerations:
- Senecaville soils have a seasonal high water table.
- Flooding is a management concern.
- Soils in some areas downstream from flood-control structures are better suited to urban development because they are not so frequently flooded.

5. Gilpin-Upshur-Vandalia

Dominantly moderately deep to very deep, strongly sloping to steep, well drained soils formed in residuum and colluvium; on uplands

Setting

Location in the survey area: The northern part of Mason County, generally in the area known as the Upper Flats

Landscape position: Gilpin and Upshur—on ridgetops, benches, and side slopes; Vandalia—on footslopes; Omulga and Gallia soils, which are minor soils—on high terraces, which are prominent landscape features of this area
Slope: Dominantly 8 to 35 percent, but ranges from 3 to 65 percent

Composition

Extent of map unit in the survey area: 9 percent
Composition of map unit:
Gilpin soils—32 percent
Upshur soils—10 percent
Vandalia soils—8 percent
Minor soils—50 percent (including Peabody, Omulga, Lobdell, Gallia, and other less prevalent soils)

Soil Properties and Qualities

Gilpin
Surface layer: Very dark grayish brown silt loam
Subsurface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown channery silt loam; lower part—strong brown channery silt loam and channery loam
Bedrock: Yellowish brown, fine grained sandstone and siltstone at a depth of 30 inches
Depth class: Moderately deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 8 to 65 percent
Parent material: Fine grained sandstone and siltstone

Upshur
Surface layer: Dark reddish brown silt loam
Subsoil: Upper part—reddish brown silty clay; lower part—dark reddish brown clay and channery silty clay
Bedrock: Interbedded yellow siltstone, red clay shale, and fine grained sandstone at a depth of 44 inches
Depth class: Deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 3 to 35 percent
Parent material: Dominantly red clay shale with interbedded siltstone and fine grained sandstone

Vandalia
Surface layer: Very dark grayish brown silt loam
Subsurface layer: Brown silt loam
Subsoil: Upper part—strong brown silty clay loam, yellowish red channery clay, and reddish brown channery silty clay with yellowish red iron concentrations; lower part—reddish brown very channery clay with strong brown iron concentrations
Depth class: Very deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 8 to 35 percent
Parent material: Red and brown soil materials from upslope

Use and Management

Uses: Pasture, hayland, and woodland

Cropland
Suitability: Suited in the less sloping areas, especially in areas of the Omulga soils, which are minor soils
Management considerations:
- The slope and the severe hazard of erosion are management concerns.

Pasture and Hayland
Suitability: Suited, especially in areas of the Omulga soils, which are minor soils
Management considerations:
- The slope and overgrazing are management concerns.

Woodland
Suitability: Suited
Management considerations:
- The slope and a hazard of soil slippage on haul roads are management concerns.

Urban Development
Suitability: Limited
Management considerations:
- The depth to bedrock is a concern in areas of the Gilpin soils.
- Upshur and Vandalia soils have a high shrink-swell potential and slow permeability.
- Omulga soils, which are minor soils, can provide better suited sites for urban development; however, they have a seasonal high water table and slow permeability between depths of 24 and 42 inches.
- The slope is a management concern.

6. Upshur-Gilpin

Deep and moderately deep, strongly sloping to very steep, well drained soils formed in residuum; on uplands

Setting

Location in the survey area: The eastern part of Mason County and most of Jackson County
Landscape position: Ridgetops, benches, and side slopes
Slope: Dominantly 8 to 65 percent, but ranges from 3 to 65 percent

Composition

Extent of map unit in the survey area: 51 percent
Composition of map unit:
Upshur soils—27 percent
Gilpin soils—22 percent
Minor soils—51 percent (including Vandalia, Sensabaugh, Peabody, Coolville, and other less prevalent soils)

Soil Properties and Qualities

Upshur
Surface layer: Dark reddish brown silt loam
Subsoil: Upper part—reddish brown silty clay; lower part—dark reddish brown clay and channery silty clay
Bedrock: Interbedded yellow siltstone, red clay shale, and fine grained sandstone at a depth of 44 inches
Depth class: Deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches

Slope: 8 to 35 percent
Parent material: Dominantly red clay shale with interbedded siltstone and fine grained sandstone

Gilpin
Surface layer: Very dark grayish brown silt loam
Subsurface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown channery silt loam; lower part—strong brown channery silt loam and channery loam
Bedrock: Yellowish brown fine grained sandstone and siltstone at a depth of 30 inches
Depth class: Moderately deep
Drainage class: Well drained
Depth to a seasonal high water table: More than 60 inches
Slope: 8 to 65 percent
Parent material: Fine grained sandstone and siltstone

Use and Management

Uses: Pasture, hayland, and woodland

Cropland
Suitability: Generally limited, but suited in the less sloping areas
Management considerations:
- The slope and a severe or very severe hazard of erosion are management concerns.
- Cultivation should be restricted to the less sloping areas and to areas of minor soils on ridgetops and bottom land.

Pasture and Hayland
Suitability: Suited on slopes of less than 25 percent; limited on slopes of 25 to 35 percent
Management considerations:
- The slope and overgrazing are management concerns.

Woodland
Suitability: Suited
Management considerations:
- The slope and the hazard of soil slippage on haul roads are management concerns.

Urban Development
Suitability: Limited
Management considerations:
- The depth to bedrock is a management concern in areas of the Gilpin soils.
- Upshur soils have a high shrink-swell potential and slow permeability.
- Alternative onsite systems are needed for proper treatment of wastewater.
- The slope is a management concern.

Detailed Soil Map Units

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Ashton silt loam, 0 to 3 percent slopes, rarely flooded, is a phase of the Ashton series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Gilpin-Upshur complex, 25 to 35 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Coolville and Tilsit soils, 3 to 8 percent slopes, is an undifferentiated group in this survey area.

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

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

AeC—Allegheny loam, 8 to 15 percent slopes

Setting

Landscape position: Sloping high terraces; near the community of Hannan in Mason County and in the eastern part of Jackson County

Composition

Allegheny soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 8 inches—dark brown loam

Subsurface layer:
8 to 15 inches—yellowish brown loam

Subsoil:
15 to 49 inches—strong brown loam and clay loam

Substratum:
49 to 60 inches—strong brown sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low

Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, strongly acid to extremely acid
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Loamy alluvium

Minor Components

Limiting inclusions:
- Soils that are underlain by residuum or soft sandstone bedrock within a depth of 60 inches
- Moderately well drained Monongahela soils
- Soils with slopes of more than 15 percent
- Soils having a coarse-loamy subsoil that is part of the control section

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent

Use and Management

Uses: Most areas of this Allegheny soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is severe.

Management considerations:
- A crop rotation that includes close-growing crops, a conservation tillage system, grassed waterways, cover crops, and crop residue management help to prevent excessive soil loss.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The hazard of erosion is severe.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The hazard of erosion is severe.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of hardwoods may be needed.

Community Development
Suitability: Suited

Management concerns:
- The slope, the hazard of erosion, and the depth to bedrock are limitations affecting urban development.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- The depth to bedrock is important when waste disposal systems are designed.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

AfA—Ashton fine sandy loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Nearly level, high flood plains along the Ohio River

Composition

Ashton soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—very dark grayish brown fine sandy loam

Subsoil:
10 to 26 inches—dark brown silt loam
26 to 39 inches—strong brown silty clay loam
39 to 50 inches—dark brown silt loam

Substratum:
50 to 65+ inches—dark brown silt loam with thin layers of loam and sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: High

Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Loamy to fine-silty alluvium

Minor Components

Limiting inclusions:
- Huntington soils that are subject to occasional or rare flooding and are in the slightly lower landscape positions
- Moderately well drained Lindside soils
- Poorly drained Melvin soils
- Soils with slopes of more than 3 percent

Nonlimiting inclusions:
- Ashton soils that have a surface layer of silt loam

Use and Management

Uses: Most areas of this Ashton soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Well suited
Management concerns:
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.

- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.

Management considerations:
- Some areas of this soil may become landlocked during periods of high water.
- Because of the flooding, this soil is generally unsuited to building site development.
- This soil is on a 500-year flood plain.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

AfB—Ashton fine sandy loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: Gently sloping, high flood plains along the Ohio River

Composition

Ashton soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—very dark grayish brown fine sandy loam

Subsoil:
10 to 26 inches—dark brown silt loam
26 to 39 inches—strong brown silty clay loam
39 to 50 inches—dark brown silt loam

Substratum:
50 to 65+ inches—dark brown silt loam with thin layers of loam and sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral

Organic matter content in the surface layer: High
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Loamy to fine-silty alluvium

Minor Components

Limiting inclusions:
- Huntington soils that are subject to occasional or rare flooding and are in the slightly lower landscape positions
- Moderately well drained Lindside soils
- Poorly drained Melvin soils
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Soils with slopes of less than 3 percent
- Ashton soils that have a surface layer of silt loam

Use and Management

Uses: Most areas of this Ashton soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.

- Most wooded areas are adjacent to streams or rivers.
- Trees immediately adjacent to drainageways should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.
- Some areas of this soil may become landlocked during periods of high water.

Management considerations:
- Because of the flooding, this soil is generally unsuited to building site development.
- This soil is on a 500-year flood plain.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

AsA—Ashton silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Nearly level, high flood plains along the Ohio and Kanawha Rivers

Composition

Ashton soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—very dark grayish brown silt loam

Subsoil:
10 to 26 inches—brown silt loam
26 to 39 inches—strong brown silty clay loam
39 to 50 inches—brown silt loam

Substratum:
50 to 65+ inches—brown silt loam with thin layers of loam and sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low

Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: High
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lindside and Gallipolis soils
- Poorly drained Melvin soils
- Huntington soils that are subject to occasional or rare flooding and are in the slightly lower landscape positions
- Soils with slopes of more than 3 percent

Nonlimiting inclusions:
- Well drained Elk soils that have a lighter colored surface horizon
- Soils with a dark surface layer more than 10 inches think; dominantly along the Ohio River
- Loamy soils that are mostly adjacent to or in close proximity to the riverbank

Use and Management

Uses: Most areas of this Ashton soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Well suited
Management concerns:
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.

- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Most wooded areas are adjacent to streams or rivers.
- Trees along streams and rivers should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.
- Some areas of this soil may become landlocked during periods of high water.

Management considerations:
- Because of the flooding, this soil is generally unsuited to building site development.
- This soil is on a 500-year flood plain.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

AsB—Ashton silt loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: Gently sloping, high flood plains along the Ohio and Kanawha Rivers

Composition

Ashton soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—very dark grayish brown silt loam

Subsoil:
10 to 26 inches—brown silt loam
26 to 39 inches—strong brown silty clay loam
39 to 50 inches—brown silt loam

Substratum:
50 to 65+ inches—brown silt loam with thin layers of loam and sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: High
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lindside and Gallipolis soils
- Poorly drained Melvin soils
- Huntington soils that are subject to occasional or rare flooding and are in the slightly lower landscape positions
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Well drained Elk soils that have a thinner, lighter colored surface horizon
- Loamy soils that are mostly located adjacent to or in close proximity to the riverbank
- Soils with slopes of less than 3 percent

Use and Management

Uses: Most areas of this Ashton soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Most wooded areas are adjacent to streams or rivers.
- Trees along streams and rivers should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.
- Some areas of this soil may become landlocked during periods of high water.

Management considerations:
- Because of flooding, this soil is generally unsuited to building site development.
- This soil is on a 500-year flood plain.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

AuB—Ashton-Gallipolis-Urban land complex, 0 to 8 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Ohio River; in areas used for residential or commercial development
Note: Areas in Point Pleasant are protected from flooding by floodwalls.
Note: The Ashton and Gallipolis soils and areas of Urban land are so intricately mixed that it was not practical to map them separately.

Composition

Ashton soil: 35 percent
Gallipolis soil: 35 percent

Urban land: 25 percent
Inclusions: 5 percent

Typical Profile

Ashton
Surface layer:
0 to 10 inches—very dark grayish brown silt loam

Subsoil:
10 to 26 inches—brown silt loam
26 to 39 inches—strong brown silty clay loam
39 to 50 inches—brown silt loam

Substratum:
50 to 65+ inches—brown silt loam with thin layers of loam and sandy loam

Gallipolis
Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam
21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Urban land
Urban land consists of areas covered by buildings, streets, parking lots, and other urban structures. A typical profile is not given because Urban land is a nonsoil area.

Soil Properties and Qualities

Drainage class: Ashton—well drained; Gallipolis—moderately well drained
Permeability: Ashton—moderate; Gallipolis—moderately slow
Available water capacity: High
Depth to a seasonal high water table: Ashton—more than 6 feet; Gallipolis—2.0 to 3.5 feet
Flooding: Rare; protected from flooding inside Point Pleasant floodwall
Shrink-swell potential: Ashton—low; Gallipolis—moderate
Hazard of erosion: Slight or moderate
Slope class: Nearly level or gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Ashton—high; Gallipolis—moderate or high
Reaction in unlimed areas: Ashton—moderately acid to neutral; Gallipolis—moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Ashton—high; Gallipolis—moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material in undisturbed areas: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Soils with a fine-loamy particle-size class

Use and Management

Uses: This map unit is used for community development. It is not suited to crops, hay, pasture, or woodland.

Community Development
Suitability: Suited
Management concerns:
- The flooding and low strength are limitations affecting urban development.
- Although this map unit is on a 100- or 500-year flood plain, it has already been used for homesites.

Management considerations:
- The floodwall in Point Pleasant helps to control flooding.
- Buildings can be constructed on well compacted fill material or on stilts to raise the site a sufficient distance above the high water mark.
- Providing coarse grained subgrade material to frost depth helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: Ashton—1; Gallipolis—2e; Urban land—not assigned
Hydric soil: No

CcC—Cedarcreek channery loam, 3 to 15 percent slopes, very stony

Setting

Landscape position: Gently sloping and strongly sloping, reclaimed and unreclaimed strip mines; dominantly in the Clifton and West Columbia areas of Mason County

Composition

Cedarcreek soil: 90 percent
Inclusions: 10 percent

Typical Profile

Surface layer:
0 to 10 inches—brown channery loam

Substratum:
10 to 24 inches—mixed gray and yellowish brown very channery loam
24 to 70 inches—mixed yellowish brown and gray very channery loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and moderate or moderately rapid in the lower part
Available water capacity: Moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate or severe
Slope class: Gently sloping or strongly sloping
Stoniness: Very stony

Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, strongly acid to extremely acid throughout
Organic matter content in the surface layer: Low or very low
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Loamy materials from the surface mining of coal

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent; most common in unreclaimed areas
- Highwalls that are dominantly near the edge of the map unit
- Extremely stony soils

Nonlimiting inclusions:
- Gilpin, Upshur, and Lily soils, which formed in residuum

Use and Management

Uses: This Cedarcreek soil is used as hayland and pasture in areas where the land has been properly reclaimed, or it is used as woodland.

Cropland
Suitability: Generally unsuited
Management concerns:
- The stoniness, acidity, and low fertility are limitations affecting cultivated crops.

Pasture and Hayland
Suitability: Suited (if the soil has been properly reclaimed)
Management concerns:
- The acidity, low fertility, droughtiness, erosion, and stoniness are limitations affecting pasture and hayland.

Management considerations:
- Applying lime and fertilizer according to soil test recommendations helps to overcome the acidity and low fertility in areas used for hay and pasture.
- Applying organic material in areas used for hay and pasture improves fertility.
- If livestock manure, poultry litter, or biosolids are applied at the proper rate and by the proper method, they will improve the soil's ability to grow and sustain plant cover.
- Establishing a livestock watering system may be necessary in areas used as pasture.
- The livestock watering system should not be located in areas where acid water runoff collects.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The acidity, low fertility, and droughtiness are limitations affecting woodland.

Management considerations:
- Applying lime and fertilizer according to soil test recommendations helps to establish tree seedlings.
- Applying organic material in areas of woodland improves fertility.
- If livestock manure, poultry litter, or biosolids are applied at the proper rate and by the proper method, they will improve the soil's ability to grow and sustain trees.
- The seedlings selected for planting should be those that are hardy enough to withstand intense periods of heat and drought.
- Removing undesirable species helps to control plant competition.

- Unreclaimed, wooded areas may benefit from the removal of undesirable species; however, most of these wooded areas provide abundant cover and food for many wildlife species.

Community Development
Suitability: Poorly suited
Management concerns:
- The stoniness, uneven settling, and stability of the soil are limitations affecting community development.

Management considerations:
- Excavating may be difficult because of the size and number of coarse fragments.
- Strength and compaction tests should be done onsite to determine if the soil can support the desired structure.
- Additional topsoil will be needed for the establishment of lawns.
- Lime and fertilizer should be applied according to soil test recommendations.

Interpretive Groups

Land capability classification: 6s
Hydric soil: No

CcE—Cedarcreek channery loam, 15 to 35 percent slopes, very stony

Setting

Landscape position: Moderately steep and steep, reclaimed and unreclaimed strip mines; dominantly in the Clifton and West Columbia areas of Mason County

Composition

Cedarcreek soil: 90 percent
Inclusions: 10 percent

Typical Profile

Surface layer:
0 to 10 inches—brown channery loam

Substratum:
10 to 24 inches—mixed gray and yellowish brown very channery loam
24 to 70 inches—mixed yellowish brown and gray very channery loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and moderate or moderately rapid in the lower part
Available water capacity: Moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe or very severe
Slope class: Moderately steep or steep
Stoniness: Very stony
Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, strongly acid to extremely acid throughout
Organic matter content in the surface layer: Low or very low

Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Loamy materials from the surface mining of coal

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Highwalls that are dominantly near the edge of the map unit
- Extremely stony soils

Nonlimiting inclusions:
- Gilpin, Upshur, and Lily soils, which formed in residuum
- Soils with slopes of less than 15 percent

Use and Management

Uses: This Cedarcreek soil is used as pasture in areas where the land has been properly reclaimed, or it is used as woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The slope, stoniness, acidity, and low fertility are limitations affecting cultivated crops.

Pasture and Hayland
Suitability: Suited to pasture and poorly suited to hay in areas where the soil has been properly reclaimed
Management concerns:
- Acidity, low fertility, droughtiness, and the severe hazard of erosion are management concerns.
- The slope and stoniness are limitations in some areas used as hayland.

Management considerations:
- Although slope may limit accessibility, applying lime and fertilizer according to soil test recommendations helps to overcome the acidity and low fertility in areas used for hay and pasture.
- Applying organic material in areas used for hay and pasture improves fertility.
- If livestock manure, poultry litter, or biosolids are applied at the proper rate and by the proper method, they will improve the soil's ability to grow and sustain plant cover.
- Establishing a livestock watering system may be necessary in areas used as pasture.
- The livestock watering system should not be located in areas where acid water runoff collects.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The acidity, low fertility, and droughtiness are limitations affecting woodland.

Management considerations:
- Although slope may limit accessibility, applying lime and fertilizer according to soil test recommendations helps to establish tree seedlings.
- Applying organic material in areas used as woodland improves fertility.
- If livestock manure, poultry litter, or biosolids are applied at the proper rate and by the proper method, they will improve the soil's ability to grow and sustain trees.
- The seedlings selected for planting should be hardy enough to withstand periods of intense heat and drought.

- Removing undesirable species helps to prevent plant competition.
- Unreclaimed, wooded areas may benefit from the removal of undesirable species; however, these wooded areas provide abundant cover and food for many wildlife species.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope, stoniness, uneven settling, and stability are limitations affecting community development.

Management considerations:
- Most areas are too steep to be used as building sites.
- Excavating may be difficult because of the size and number of coarse fragments.
- Strength and compaction tests should be done onsite to determine if the soil can support the desired structure.
- Additional topsoil will be needed for the establishment of lawns.
- Lime and fertilizer should be applied according to soil test recommendations.
- If the existing topsoil is disturbed during construction activities, the soil should be reseeded and mulched to minimize erosion.

Interpretive Groups

Land capability classification: 7s
Hydric soil: No

CdA—Chagrin loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains that are generally in the middle or lower reaches of named streams that flow into the Kanawha and Ohio Rivers; throughout the survey area

Composition

Chagrin soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown loam

Subsoil:
6 to 36 inches—brown and strong brown loam

Substratum:
36 to 48 inches—brown fine sandy loam
48 to 65 inches—dark yellowish brown fine sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 4 to 6 feet
Flooding: Occasional

Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 6 feet
Parent material: Fine-loamy alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lobdell soils on flood plains
- Poorly drained Melvin soils in depressions and old oxbows
- Vandalia soils on footslopes

Nonlimiting inclusions:
- Well drained Sensabaugh soils
- Well drained Kanawha soils on high flood plains and low terraces
- Sensabaugh soils that are rarely flooded and on alluvial fans and high flood plains
- Soils with colors redder than those of the Chagrin soil

Use and Management

Uses: Most areas of this Chagrin soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The flooding occasionally delays field operations or damages crops.

Management considerations:
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The occasional flooding and streambank erosion are management concerns.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.
- The flooding occasionally deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.

• Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
• No major hazards or limitations affect planting or harvesting.
Management considerations:
• Only a limited acreage of this soil is used as woodland.
• Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
• If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
• Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Unsuited to building site development; limited as a site for roads and streets
Management concerns:
• The occasional flooding is a hazard affecting community development.
Management considerations:
• Adjacent areas that are out of the flood plain and better suited to community development should be selected.
• Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

CfA—Chagrin-Melvin complex, 0 to 3 percent slopes, frequently flooded

Setting

Landscape position: Chagrin—generally in the higher landscape positions on flood plains; Melvin—in depressions and oxbows on flood plains; upstream of tributary mouths along the Kanawha and Ohio Rivers
Note: The Chagrin and Melvin soils occur as areas that are too intermingled to map separately at this scale.

Composition

Chagrin soil: 45 percent
Melvin soil: 25 percent
Inclusions: 30 percent

Typical Profile

Chagrin
Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 36 inches—brown and strong brown loam

Substratum:
36 to 48 inches—brown fine sandy loam
48 to 65 inches—dark yellowish brown fine sand

Melvin
Surface layer:
0 to 9 inches—brown silt loam with gray redox depletions and strong brown iron concentrations

Subsoil:
9 to 27 inches—dark grayish brown silt loam with strong brown redox concentrations

Substratum:
27 to 65 inches—gray and grayish brown silty clay loam with strong brown iron concentrations

Soil Properties and Qualities

Drainage class: Chagrin—well drained; Melvin—poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Chagrin—at a depth of 4 to 6 feet; Melvin—within a depth of 1 foot
Flooding: Frequently flooded by backwater
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: Moderate
Surface runoff: Low to negligible
Depth to bedrock: More than 5 feet
Parent material: Loamy and silty alluvium

Minor Components

Nonlimiting inclusions:
- Moderately well drained or somewhat poorly drained soils that are subject to frequent flooding in most areas
- Small areas not subject to frequent flooding by backwater; commonly at a slightly higher elevation or at the edge of the map unit

Use and Management

Uses: This map unit is used as pasture, woodland, or wildlife habitat.

Cropland
Suitability: Unsuited
Management concerns:
- The frequent flooding by backwater is a hazard in cultivated areas.

Management considerations:
- These bottom land soils should not be used for cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay in most areas; suited to pasture during the drier months of the year

Management concerns:
- The frequent flooding is a hazard affecting hayland and pasture.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- The hay and pasture plants that can withstand periodic inundation by floodwater and the seasonal wetness should be selected for planting.
- Floodwater debris may need to be cleared if this map unit is used as hayland.

Woodland

Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The flooding and the seasonal high water table are management concerns.

Management considerations:
- The frequent flooding and the seasonal high water table restrict equipment use to midsummer when the soil is dry.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Trees generally are not planted in areas of this map unit because of the seasonal high water table, the flooding, and the seedling mortality rate.
- Practices that help to save desirable trees should be applied because the trees will naturally reseed the area.

Community Development

Suitability: Unsuited
Management concerns:
- The frequent flooding is a hazard affecting community development.

Management considerations:
- The flooding may last for extended periods of time, especially during winter and spring months.
- This map unit should not be used for community development.
- Adjacent areas that are out of the flood plain and better suited to community development should be selected as sites for buildings and roads.
- Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 5w
Hydric soil: Melvin—yes; Chagrin—no

ChA—Chavies fine sandy loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level terraces along the Ohio River

Composition

Chavies soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 33 inches—yellowish brown fine sandy loam

33 to 47 inches—yellowish brown loamy fine sand and strong brown fine sandy loam
47 to 64 inches—strong brown fine sandy loam and dark yellowish brown loamy fine sand

Substratum:
64 to 70 inches—dark yellowish brown sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to neutral in the upper part of the solum and very strongly acid to moderately acid in the lower part of the solum and in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 5 feet
Parent material: Coarse-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 3 percent
- Moderately well drained Gallipolis soils and soils that have a loamy subsoil
- Well drained Conotton soils
- Excessively drained Lakin soils

Nonlimiting inclusions:
- Well drained Wheeling soils

Use and Management

Uses: This Chavies soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Well suited
Management concerns:
- Droughtiness is a management concern in some areas.

Management considerations:
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet and dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- Droughtiness is a management concern in some areas.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during droughty periods.

Community Development
Suitability: Well suited
Management concerns:
- Few limitations affect most urban uses.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No

ChB—Chavies fine sandy loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping terraces along the Ohio River

Composition

Chavies soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 33 inches—yellowish brown fine sandy loam
33 to 47 inches—yellowish brown loamy fine sand and strong brown fine sandy loam
47 to 64 inches—strong brown fine sandy loam and dark yellowish brown loamy fine sand

Substratum:
64 to 70 inches—dark yellowish brown sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to neutral in the upper part of the solum and very strongly acid to moderately acid in the lower part of the solum and in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Coarse-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Moderately well drained Gallipolis soils and soils that have a loamy subsoil
- Well drained Conotton soils
- Excessively drained Lakin soils

Nonlimiting inclusions:
- Well drained Wheeling soils
- Soils with slopes of less than 3 percent

Use and Management

Uses: This Chavies soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Well suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- Droughtiness may be a limitation in some areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet and dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak

Management concerns:
- Droughtiness may be a limitation.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during droughty periods.

Community Development
Suitability: Well suited
Management concerns:
- Few limitations affect most urban uses.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

ChC—Chavies fine sandy loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping terraces along the Ohio River

Composition

Chavies soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 33 inches—yellowish brown fine sandy loam
33 to 47 inches—yellowish brown loamy fine sand and strong brown fine sandy loam
47 to 64 inches—strong brown fine sandy loam and dark yellowish brown loamy fine sand

Substratum:
64 to 70 inches—dark yellowish brown sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: High

Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to neutral in the upper part of the solum and very strongly acid to moderately acid in the lower part of the solum and in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Coarse-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Moderately well drained Gallipolis soils and soils that have a loamy subsoil
- Well drained Conotton soils
- Excessively drained Lakin soils

Nonlimiting inclusions:
- Well drained Wheeling soils
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Chavies soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.
- Droughtiness may be a problem in some areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet and dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The hazard of erosion is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Logging roads and landings should be built on the gentler slopes.

- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during droughty periods.

Community Development
Suitability: Suited
Management concerns:
- The severe hazard of erosion and seepage in the lower horizons of the soil are management concerns.

Management considerations:
- Revegetating after construction with stockpiled topsoil helps to control erosion.
- This Chavies soil is generally shallower to sandy materials than other Chavies soils in the survey area.
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

CkB—Chavies-Urban land complex, 0 to 8 percent slopes

Setting

Landscape position: Loamy terraces along the Ohio River; in areas used for residential or commercial development
Note: The Chavies soil and Urban land occur as areas so intricately mixed that it was not practical to map them separately.

Composition

Chavies soil: 45 percent
Urban land: 35 percent
Inclusions: 20 percent

Typical Profile

Chavies
Surface layer:
0 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 33 inches—yellowish brown fine sandy loam
33 to 47 inches—yellowish brown loamy fine sand and strong brown fine sandy loam

47 to 64 inches—strong brown fine sandy loam and dark yellowish brown loamy fine sand

Substratum:
64 to 70 inches—dark yellowish brown medium sand

Urban land
Urban land consists of areas covered by buildings, streets, parking lots, and other urban structures. A typical profile is not given because Urban land is a nonsoil area.

Soil Properties and Qualities

Drainage class: Chavies—well drained
Permeability: Chavies—moderately rapid
Available water capacity: Chavies—high
Depth to a seasonal high water table: Chavies—more than 6 feet
Flooding: None
Shrink-swell potential: Chavies—low
Hazard of erosion: Chavies—none to moderate
Slope class: Nearly level or gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Chavies—medium
Reaction: Chavies—in unlimed areas, very strongly acid to neutral in the upper part of the solum and very strongly acid to moderately acid in the lower part of the solum and in the substratum
Organic matter content in the surface layer: Chavies—moderate
Surface runoff: Chavies—very low
Depth to bedrock: Chavies—more than 5 feet
Parent material: Coarse-loamy alluvium in undisturbed areas

Minor Components

Limiting inclusions:
- Soils that have a seasonal high water table
- Soils with slopes of more than 8 percent
- Soils that are subject to flooding; dominantly along the edge of another map unit that is subject to flooding

Nonlimiting inclusions:
- Soils with a fine-loamy subsoil

Use and Management

Uses: This map unit is used for community development. It is not suited to cropland, hayland, or pasture and is not rated for woodland productivity.

Community Development
Suitability: Well suited
Management concerns:
- Few limitations affect the use of this map unit for community development.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.

- Connection to a public water and sewer system, if available, is an acceptable alternative.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: Chavies—2e; Urban land—not assigned
Hydric soil: No

CoA—Conotton gravelly sandy loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level terraces along the Ohio River

Composition

Conotton soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 6 inches—brown gravelly loam

Subsurface layer:
6 to 10 inches—dark yellowish brown gravelly sandy loam

Subsoil:
10 to 24 inches—strong brown very gravelly sandy loam
24 to 35 inches—brown very gravelly sandy loam

Substratum:
35 to 65 inches—dark yellowish brown very gravelly loamy sand and sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the upper part of the profile and strongly acid to neutral in the lower part
Organic matter content in the surface layer: Low to moderate
Surface runoff: Very low
Depth to bedrock: More than 5 feet
Parent material: Loamy-skeletal glacial outwash

Minor Components

Limiting inclusions:
- Soils with slopes of more than 3 percent

- Moderately well drained soils that have a loamy subsoil

Nonlimiting inclusions:
- Well drained Chavies soils containing less than 35 percent coarse fragments in the control section
- Well drained soils that do not have an argillic horizon

Use and Management

Uses: This Conotton soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- Droughtiness during the growing season is a management concern.

Management considerations:
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Drought-tolerant crops should be selected for planting.
- Where practical, irrigation of crops will improve crop yields during dry years.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Droughtiness and the hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, a planned grazing system, and deferred grazing during dry periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 70 for northern red oak
Management concerns:
- Droughtiness is a management concern.

Management considerations:
- This soil is not used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during droughty periods.
- A management plan for establishing seedlings can be obtained from the Clements State Tree Nursery, Department of Commerce, West Virginia Division of Forestry.

Community Development
Suitability: Suited to most uses except waste disposal systems
Management concerns:
- The droughtiness and the moderately rapid or rapid permeability are limitations affecting community development.

Management considerations:
- The depth to sand and gravel should be taken into consideration when waste disposal systems are designed.

- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3s
Farmland of statewide importance: Yes
Hydric soil: No

CsB—Coolville and Tilsit soils, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping ridgetops; throughout the survey area
Note: This map unit may be composed of nearly all Coolville soil, nearly all Tilsit soil, or a combination of both soils.

Composition

Coolville soil: 50 percent
Tilsit soil: 30 percent
Inclusions: 20 percent

Typical Profile

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

Subsurface layer:
5 to 11 inches—brown silt loam

Subsoil:
11 to 18 inches—yellowish brown silt loam
18 to 21 inches—yellowish red silty clay loam with strong brown iron accumulations
21 to 28 inches—yellowish red silty clay with pinkish gray iron depletions and strong brown iron accumulations
28 to 42 inches—light brownish gray clay with yellowish brown and yellowish red iron concentrations

Substratum:
42 to 52 inches—mixed yellowish brown, gray, and yellowish red channery silty clay loam

Bedrock:
52 inches—soft, light gray siltstone and shale

Tilsit
Surface layer:
0 to 10 inches—brown silt loam

Subsurface layer:
10 to 14 inches—yellowish brown silt loam

Subsoil:
14 to 28 inches—yellowish brown silt loam
28 to 40 inches—yellowish brown silt loam with grayish brown iron depletions; firm and brittle consistence
40 to 46 inches—yellowish brown silty clay loam with grayish brown iron depletions

Bedrock:
46 inches—weathered interbedded siltstone and fine grained sandstone

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the solum and slow in the lower part of the solum and in the substratum due to the clayey subsoil in the Coolville soil and the fragipan in the Tilsit soil
Available water capacity: Coolville—moderate or high; Tilsit—moderate
Depth to a seasonal high water table: Coolville—1.5 to 3.0 feet; Tilsit—2.0 to 3.0 feet
Flooding: None
Shrink-swell potential: Coolville—moderate; Tilsit—low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Coolville—moderate; Tilsit—low
Reaction: In unlimed areas, slightly acid to extremely acid in the surface and subsurface layers, strongly acid to extremely acid in the upper part of the subsoil, and strongly acid or very strongly acid in the lower part of the subsoil and in the substratum of the Coolville soil and strongly acid to extremely acid throughout the Tilsit soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: 40 to 60 inches
Parent material: Coolville—residuum derived from siltstone and shale; Tilsit—residuum derived from siltstone and fine grained sandstone

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Well drained Upshur and Gilpin soils
- Soils with a yellowish brown subsoil that does not have a fragipan or fragic properties
- Moderately well drained soils that have a fine-loamy subsoil
- Soils capped with as much as 30 inches of alluvial material; in a nonflooded terrace position, commonly adjacent to large streams
- Soils capped with as much as 24 inches of windblown material; on ridgetops adjacent to the Ohio River

Use and Management

Uses: These Coolville and Tilsit soils are used as cropland, hayland, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness, the firmness in the subsoil, and the moderate hazard of erosion are management concerns.

Management considerations:
- Crop rotations that include grasses and legumes and small grain will help to control runoff and water erosion.

Pasture and Hayland
Suitability: Suited

Management concerns:
- The seasonal wetness and firmness in the subsoil are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland

Potential productivity: Coolville—site index of 66 for northern red oak; Tilsit—site index of 70 for northern red oak

Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Because these soils are soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.

Community Development

Suitability: Suited

Management concerns:
- The seasonal high water table, the slow permeability, and the clayey subsoil in the Coolville soil are management concerns.

Management considerations:
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling in areas of Coolville soils.
- An alternative septic tank system that compensates for the slow or restricted permeability should be considered.

Interpretive Groups

Land capability classification: 2e
Farmland of statewide importance: Yes
Hydric soil: No

CuD—Culleoka-Lowell complex, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, dissected upland ridgetops and upper side slopes
Note: The Culleoka and Lowell soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Culleoka soil: 50 percent
Lowell soil: 40 percent
Inclusions: 10 percent

Typical Profile

Culleoka

Surface layer:
0 to 10 inches—dark brown channery silt loam

Subsoil:
10 to 21 inches—strong brown channery silt loam

21 to 26 inches—strong brown very channery silt loam

Substratum:
26 to 31 inches—brown very channery silt loam

Bedrock:
31 inches—highly fractured shale and siltstone

Lowell
Surface layer:
0 to 10 inches—brown silty clay loam

Subsoil:
10 to 13 inches—strong brown silty clay loam
13 to 22 inches—strong brown silty clay
22 to 46 inches—reddish yellow clay
46 to 57 inches—brown stony clay

Substratum:
57 to 59 inches—reddish yellow very stony silty clay loam

Bedrock:
59 inches—limestone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Culleoka—moderate; Lowell—moderately slow
Available water capacity: Culleoka—moderate; Lowell—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Culleoka—low; Lowell—moderate
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Culleoka—moderate; Lowell—moderate or high
Reaction: In unlimed areas, moderately acid or strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum of the Culleoka soil and moderately acid to neutral in the surface layer and upper part of the subsoil and slightly acid to slightly alkaline in the lower part of the subsoil and in the substratum of the Lowell soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: Culleoka—20 to 40 inches; Lowell—40 to 60 inches
Parent material: Culleoka—residuum derived from siltstone and limy shale; Lowell—residuum derived from limestone and limy shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Severely eroded soils
- Soils that are less than 20 inches deep

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Upshur and Peabody soils on lower side slopes

Use and Management

Uses: Most areas have been cleared and are used for hay and pasture. Some are wooded.

Cropland
Suitability: Limited
Management concerns:
- The hazard of erosion is severe in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion, the prevention of overgrazing, and the establishment and maintenance of a mixture of grasses and legumes are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Culleoka—site index of 80 for northern red oak; Lowell—site index of 75 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails and the hazard of soil slippage during wet conditions are management concerns.

Management considerations:
- Building roads and skid trails on the contour helps to control erosion.
- Because of the very slow permeability and the sticky and plastic subsoil, logging roads constructed in areas of the Lowell soil should be graveled and in some areas landings should be stabilized.
- Seeding logging roads, landings, and areas that have been cut and filled and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope and depth to bedrock are limitations affecting community development in areas of the Culleoka soil.
- The slope, the clayey subsoil, low strength, and the moderate shrink-swell potential are management concerns in areas of the Lowell soil.
- The moderate hazard of slippage is a management concern in areas of both soils.

Management considerations:
- Because of the slope, these soils are poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.

- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through a properly designed surface and subsurface drainage system help to prevent the structural damage caused by shrinking and swelling.
- For septic tank absorption fields, selecting areas of the deepest soils, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Culleoka soil.
- Increasing the size of the absorption area and backfilling with gravel help to compensate for the restricted permeability in the Lowell soil; however, alternative systems may provide the best treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Limiting soil disturbance during construction minimizes the hazard of slippage.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- Topsoil should be stockpiled for use in revegetation.
- The stockpiled topsoil should be vegetated to help control erosion.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

CuE—Culleoka-Lowell complex, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex, dissected upland side slopes
Note: The Culleoka and Lowell soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Culleoka soil: 50 percent
Lowell soil: 30 percent
Inclusions: 20 percent

Typical Profile

Culleoka
Surface layer:
0 to 10 inches—dark brown channery silt loam

Subsoil:
10 to 21 inches—strong brown channery silt loam
21 to 26 inches—strong brown very channery silt loam

Substratum:
26 to 31 inches—brown very channery silt loam

Bedrock:
31 inches—highly fractured shale and siltstone

Lowell
Surface layer:
0 to 10 inches—brown silty clay loam

Subsoil:
10 to 13 inches—strong brown silty clay loam

13 to 22 inches—strong brown silty clay
22 to 46 inches—reddish yellow clay
46 to 57 inches—brown stony clay

Substratum:
57 to 59 inches—reddish yellow very stony silty clay loam

Bedrock:
59 inches—limestone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Culleoka—moderate; Lowell—moderately slow
Available water capacity: Culleoka—moderate; Lowell—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Culleoka—low; Lowell—moderate
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Culleoka—moderate; Lowell—moderate or high
Reaction: In unlimed areas, moderately acid or strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum of the Culleoka soil and moderately acid to neutral in the surface layer and upper part of the subsoil and slightly acid to slightly alkaline in the lower part of the subsoil and in the substratum of the Lowell soil
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: Culleoka—20 to 40 inches; Lowell—40 to 60 inches
Parent material: Culleoka—residuum derived from siltstone and limy shale; Lowell—residuum derived from limestone and limy shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Soils that are less than 20 inches deep
- Soils that have more than 1 percent of their surface covered by stones
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 25 percent
- Vandalia soils on footslopes and benches

Use and Management

Uses: Many areas of the Culleoka and Lowell soils are wooded. Other areas are used as pasture or are reverting from pasture to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, these soils are generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; poorly suited to pasture

Management concerns:

- The excessive slope, the severe hazard of erosion, and the prevention of overgrazing are management concerns.

Management considerations:

- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Springs and seeps may have the potential for development into livestock watering sites.

Woodland

Potential productivity: Culleoka—site index of 80 for northern red oak; Lowell—site index of 75 for northern red oak

Management concerns:

- The excessive slope, the severe hazard of erosion, and the equipment limitation are management concerns.
- Plant competition may be a problem on slopes with north aspects.

Management considerations:

- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Logging roads in areas of the Lowell soil may need to be graveled.
- Landings should be built in the less sloping areas of the Culleoka soil.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development

Suitability: Unsuited

Management concerns:

- The excessive slope, the severe hazard of erosion, and the hazard of slippage are management concerns in areas of the Culleoka and Lowell soils.
- The moderate shrink-swell potential is a limitation affecting community development in areas of the Lowell soil.

Management considerations:

- Because of the slope, these soils are generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction helps to prevent erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Lowell soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: 6e

Hydric soil: No

DuC—Duncannon silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, coarse-silty, dunelike deposits on stream terraces and loess-covered hills along the Ohio River

Composition

Duncannon soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsurface layer:
6 to 11 inches—yellowish brown silt loam

Subsoil:
11 to 52 inches—strong brown silt loam

Substratum:
52 to 65 inches—yellowish brown fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 3.5 to 5.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid or strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Coarse-silty windblown deposits

Minor Components

Limiting inclusions:
- Soils with iron depletions within a depth of 40 inches
- Soils with slopes of more than 15 percent
- The excessively drained Lakin soils
- Well drained Vandalia soils
- Soils with firmness in the subsoil

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Duncannon soil is used as hayland, pasture, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard if pastures are overgrazed.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet and dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Suited
Management concerns:
- The severe hazard of erosion and the possibility of seepage in the lower horizons are management concerns.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Revegetating after construction with stockpiled topsoil helps to control erosion.
- The waste disposal system or structure should be designed so that the silty textures of the subsoil are used.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

DuD—Duncannon silt loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, coarse-silty, dunelike deposits on stream terraces and loess-covered hills along the Ohio River (fig. 3)

Composition

Duncannon soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsurface layer:
6 to 11 inches—yellowish brown silt loam

Subsoil:
11 to 52 inches—strong brown silt loam

Substratum:
52 to 65 inches—yellowish brown fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate

Figure 3.—A typical river valley landscape with Duncannon soils used for pasture, Chavies soils for cultivated crops, and Gilpin and Upshur soils as woodland. Duncannon soils formed in windblown sediments, or loess, and are characterized by the dunelike deposits.

Available water capacity: High
Depth to a seasonal high water table: 3.5 to 5.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Very severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid or strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 5 feet
Parent material: Coarse-silty windblown deposits

Minor Components

Limiting inclusions:
- Soils with iron depletions within a depth of 40 inches
- Soils with slopes of more than 25 percent
- Excessively drained Lakin soils
- Well drained Vandalia soils
- Soils with firmness in the subsoil

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent

Use and Management

Uses: This Duncannon soil is used as hayland, pasture, or woodland.

Cropland
Suitability: Poorly suited
Management concerns:
- The very severe hazard of erosion is a management concern.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The hazard of erosion is very severe if pastures are overgrazed.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet and dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The very severe hazard of erosion and the possibility of seepage in the lower horizons are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Revegetating after construction with stockpiled topsoil helps to control erosion.
- The waste disposal system or structure should be designed so that the silty textures of the subsoil are used.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

DuE—Duncannon silt loam, 25 to 35 percent slopes

Setting

Landscape position: Steep, coarse-silty, loess-covered hills along the Ohio River

Composition

Duncannon soil: 60 percent
Inclusions: 40 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsurface layer:
6 to 11 inches—yellowish brown silt loam

Subsoil:
11 to 52 inches—strong brown silt loam

Substratum:
52 to 65 inches—yellowish brown fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 3.5 to 5.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid or strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 5 feet
Parent material: Coarse-silty, windblown deposits

Minor Components

Limiting inclusions:
- Soils with iron depletions within a depth of 40 inches
- Soils with slopes of more than 35 percent
- Excessively drained Lakin soils
- Well drained Gilpin, Upshur, and Vandalia soils
- Soils with firmness in the subsoil

Nonlimiting inclusions:
- Soils with slopes of less than 25 percent

Use and Management

Uses: This Duncannon soil is used as woodland or pasture.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the prevention of overgrazing are management concerns.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.

- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes, in fields where access is available.

Woodland

Potential productivity: Site index of 80 for northern red oak

Management concerns:

- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:

- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development

Suitability: Unsuited

Management concerns:

- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:

- Because of the slope, this soil is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Seeding and mulching roadbanks after construction will help to control erosion.

Interpretive Groups

Land capability classification: 6e

Hydric soil: No

EkA—Elk silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Kanawha River

Composition

Elk soil: 65 percent

Inclusions: 35 percent

Typical Profile

Surface layer:

0 to 11 inches—brown silt loam

Subsoil:
11 to 28 inches—strong brown silty clay loam
28 to 43 inches—brown silty clay loam
43 to 52 inches—brown silt loam
52 to 58 inches—dark yellowish brown silt loam

Substratum:
58 to 65+ inches—dark yellowish brown silt loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 3.3 to 4.5 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and strongly acid to slightly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Huntington soils that are subject to occasional flooding
- Moderately well drained Gallipolis and Lindside soils
- Poorly drained Melvin and Ginat soils
- Soils with slopes of more than 3 percent

Nonlimiting inclusions:
- Well drained Ashton soils that have a darker surface layer
- Soils that have fine-loamy textures in the subsoil within a depth of 40 inches

Use and Management

Uses: Most areas of this Elk soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Well suited
Management concerns:
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.

- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a very limited acreage of this soil is used as woodland.
- Most wooded areas are adjacent to streams.
- Trees immediately adjacent to streams should not be harvested because they help to stabilize the streambank.

Community Development
Suitability: Limited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.

Management considerations:
- Upstream flood-control structures have helped to overcome the flooding; however, some areas may become landlocked during periods of high water.
- This soil is on a 500-year flood plain.
- Adding fill material to raise the structure or roadbed above the 500-year flood elevation may be beneficial.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

EkB—Elk silt loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Kanawha River

Composition

Elk soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 11 inches—brown silt loam

Subsoil:
11 to 28 inches—strong brown silty clay loam
28 to 43 inches—brown silty clay loam
43 to 52 inches—brown silt loam

52 to 58 inches—dark yellowish brown silt loam

Substratum:
58 to 65+ inches—dark yellowish brown silt loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 3.3 to 4.5 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and strongly acid to slightly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Moderately well drained Gallipolis and Lindside soils
- Poorly drained Melvin and Ginat soils

Nonlimiting inclusions:
- Soils with slopes of less than 3 percent
- Well drained Ashton soils that have a darker surface soil
- Soils that have fine-loamy textures in the subsoil within a depth of 40 inches

Use and Management

Uses: Most areas have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.

Management considerations:
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a very limited acreage of this soil is used as woodland.
- Most wooded areas are adjacent to streams.
- Trees along streams should not be harvested because they help to stabilize the streambank.

Community Development
Suitability: Suited
Management concerns:
- The flooding and low soil strength are limitations affecting urban development.

Management considerations:
- Upstream flood-control structures have helped to overcome the flooding; however, some areas may become landlocked during periods of high water.
- This soil is on a 500-year flood plain.
- Adding fill material to raise the structure or roadbed above the 500-year flood elevation may be beneficial.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GaC—Gallia loam, 8 to 15 percent slopes

Setting

Landscape position: On strongly sloping, loamy terraces in the northern part of Mason County, known as the Upper Flats area, and on high terraces along the Kanawha and Ohio Rivers (fig. 4)

Composition

Gallia soil: 60 percent
Inclusions: 40 percent

Typical Profile

Surface layer:
0 to 4 inches—brown loam

Subsurface layer:
4 to 9 inches—strong brown loam

Subsoil:
9 to 28 inches—yellowish red clay loam and loam
28 to 60 inches—red loam and sandy loam

Substratum:
60 to 65 inches—yellowish brown and light gray loam

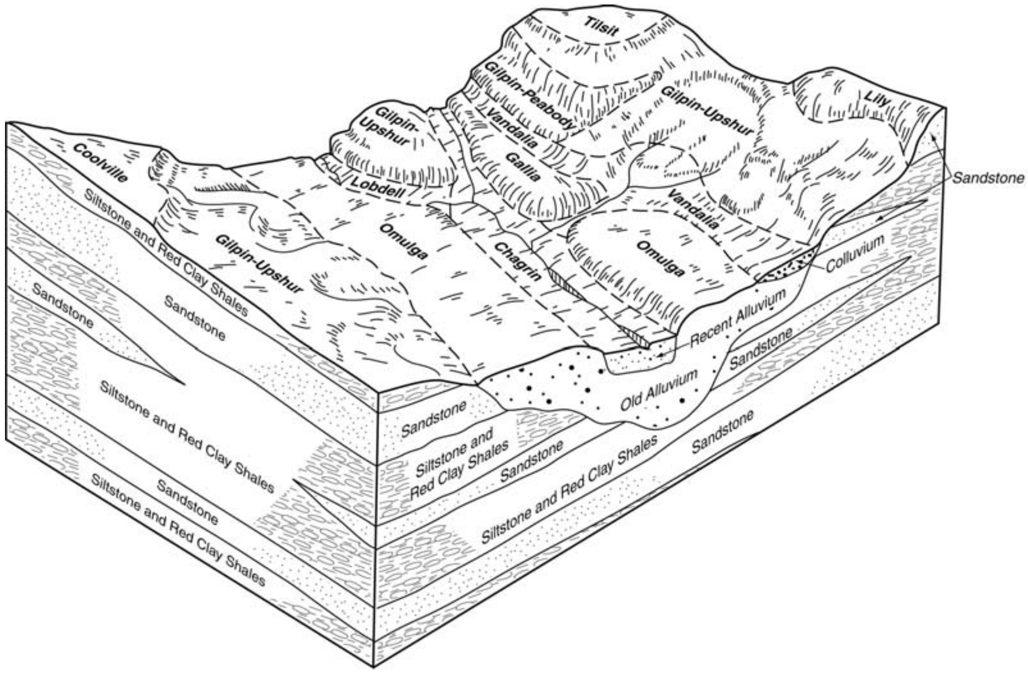

Figure 4.—A typical pattern of upland and high terrace soils in the Upper Flats area of Mason County. The origin of the Gallia and Omulga soils is associated with the ancient Teays River System.

Bedrock:
65 inches—soft siltstone and shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Severe
Slope class: Sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid or strongly acid in the surface layer and subsoil and very strongly acid to moderately acid in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Mainly old alluvium; in some areas residuum derived from interbedded siltstone, shale, and sandstone

Minor Components

Limiting inclusions:
- Soils that are underlain by residuum or soft sandstone bedrock within a depth of 60 inches; more common in some of the smaller map units that represent “spots” of terrace remnants in the Upper Flats area of Mason County

- Moderately well drained Omulga soils or other moderately well drained soils that have a loamy subsoil
- Soils with slopes of more than 15 percent
- Soils having coarse-loamy textures in the subsoil that is part of the control section

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent
- Soils that are brown throughout the subsoil

Use and Management

Uses: This Gallia soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- A crop rotation that includes close-growing crops, a conservation tillage system, grassed waterways, cover crops, and crop residue management help to prevent excessive soil loss.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 95 for northern red oak
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of hardwoods may be needed in areas where trees are planted.

Community Development
Suitability: Suited
Management concerns:
- The slope, the hazard of erosion, and the depth to bedrock are limitations affecting urban development.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- The depth to bedrock should be taken into consideration when waste disposal systems are designed.
- Waste disposal systems that are underlain by clayey materials may require modifications so they function properly.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

GfA—Gallipolis silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level terraces along the Ohio River

Composition

Gallipolis soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam
21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat soils in depressions and sloughs
- Somewhat poorly drained Taggart soils in the slightly lower landscape positions
- Soils with gray iron depletions less than 10 inches below the top of the subsoil
- Soils with slopes of more than 3 percent

Nonlimiting inclusions:
- Well drained Wheeling and Chavies soils in the higher landscape positions
- Soils that have a loamy particle-size class

Use and Management

Uses: This Gallipolis soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Well suited
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- The seasonal wetness may delay tillage and planting in the spring.
- Delaying tillage until the soil is reasonably dry helps to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Preventing damage to sod during wet periods is a management concern.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods because the soil is soft when wet.
- Trees immediately adjacent to drainageways should not be harvested because they help to stabilize the streambank and control erosion.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- Mounding or adding suitable fill material helps to raise septic tank absorption fields above the seasonal high water table.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GfB—Gallipolis silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping terraces along the Ohio River

Composition

Gallipolis soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam
21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat soils in depressions and sloughs
- Somewhat poorly drained Taggart soils in the slightly lower landscape positions
- Soils with gray iron depletions less than 10 inches below the top of the subsoil
- Soils that have slopes of more than 8 percent and are commonly adjacent to streams

Nonlimiting inclusions:
- Well drained Wheeling and Chavies soils in the higher landscape positions
- Soils that have a loamy particle-size class

Use and Management

Uses: This Gallipolis soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- The seasonal wetness may delay tillage and planting in the spring.

Management considerations:
- Delaying tillage until the soil is reasonably dry helps to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods and the moderate hazard of erosion are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods because the soil is soft when wet.
- Trees immediately adjacent to drainageways should not be harvested because they help to stabilize the streambank and control erosion.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- Mounding or adding suitable fill material helps to raise septic tank absorption fields above the seasonal high water table.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GgA—Gallipolis silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Kanawha and Ohio Rivers

Composition

Gallipolis soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam
21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat soils in depressions and sloughs
- Somewhat poorly drained Taggart soils in the slightly lower landscape positions
- Soils with gray iron depletions less than 10 inches below the top of the subsoil
- Soils with slopes of more than 3 percent
- Soils with less profile development than is typical for Gallipolis soils

Nonlimiting inclusions:
- Well drained Elk and Ashton soils in the higher landscape positions

Use and Management

Uses: This Gallipolis soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness may delay tillage and planting in the spring.
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The flooding and damage to sod during wet periods are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a small acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods because the soil is soft when wet.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited
Management concerns:
- The flooding and the seasonal wetness are management concerns.

Management considerations:
- Adjacent areas that are out of the flood plain are better suited to community development.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GgB—Gallipolis silt loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Kanawha and Ohio Rivers

Composition

Gallipolis soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam

21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat soils in depressions and sloughs
- Somewhat poorly drained Taggart soils in the slightly lower landscape positions
- Soils with gray iron depletions less than 10 inches below the top of the subsoil
- Soils that have slopes of more than 8 percent and are commonly adjacent to streams

Nonlimiting inclusions:
- Well drained Elk and Ashton soils in the higher landscape positions

Use and Management

Uses: This Gallipolis soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- The seasonal wetness may delay tillage and planting in the spring.
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding rarely occurs and generally does not damage crops.
- Delaying tillage until the soil is reasonably dry helps to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited

Management concerns:
• The flooding and damage to sod during wet periods are management concerns.
Management considerations:
• Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
• The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
• The seasonal wetness is a management concern.
Management considerations:
• Only a limited acreage of this soil is used as woodland.
• Equipment use should be restricted during wet periods because the soil is soft when wet.
• The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited
Management concerns:
• The flooding and the seasonal wetness are management concerns.
Management considerations:
• Adjacent areas that are out of the flood plain are better suited to community development.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GhB—Gallipolis-Urban land complex, 0 to 8 percent slopes

Setting

Landscape position: Terraces along the Ohio River; in areas used for residential or commercial development
Note: The Gallipolis soil and Urban land occur as areas so intricately mixed that it was not practical to map them separately.

Composition

Gallipolis soil: 45 percent
Urban land: 30 percent
Inclusions: 25 percent

Typical Profile

Gallipolis
Surface layer:
0 to 10 inches—dark grayish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silty clay loam
21 to 52 inches—brown silty clay loam with common grayish brown or light brownish gray iron depletions
52 to 60 inches—brown silt loam with few light brownish gray iron depletions

Substratum:
60 to 74 inches—brown silty clay loam with common grayish brown iron depletions

Urban land

Urban land consists of areas covered by buildings, streets, parking lots, and other urban structures. A typical profile is not given because Urban land is a nonsoil area.

Soil Properties and Qualities

Drainage class: Gallipolis—moderately well drained
Permeability: Gallipolis—moderately slow
Available water capacity: Gallipolis—high
Depth to a seasonal high water table: Gallipolis—2.0 to 3.5 feet
Flooding: None
Shrink-swell potential: Gallipolis—moderate
Hazard of erosion: Gallipolis—slight or moderate
Slope class: Nearly level or gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gallipolis—moderate or high
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum of the Gallipolis soil
Organic matter content in the surface layer: Gallipolis—moderate
Surface runoff: Gallipolis—medium
Depth to bedrock: Gallipolis—more than 5 feet
Parent material: Fine-silty alluvium in undisturbed areas

Minor Components

Limiting inclusions:
- Soils with gray iron depletions less than 10 inches from the top of the subsoil
- Soils with slopes of more than 8 percent
- Soils that are subject to flooding and are dominantly in areas near the edge of a map unit that also is subject to flooding

Nonlimiting inclusions:
- Soils with a fine-loamy subsoil
- Well drained Wheeling soils

Use and Management

Uses: This map unit is used for community development. It is not suited to cropland, hayland, or pasture and is not rated for woodland productivity.

Community Development

Suitability: Suited
Management concerns:
- The seasonal wetness and low strength are limitations affecting community development.

Management considerations:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- Providing coarse grained subgrade material to frost depth helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: Gallipolis—2e; Urban land—not assigned
Hydric soil: No; however, map unit inclusions may be hydric soils

GIF3—Gilpin-Peabody complex, 35 to 65 percent slopes, severely eroded

Setting

Landscape position: Very steep, convex, dissected upland side slopes
Note: The Gilpin and Peabody soils occur as areas so intermingled that it was not practical to map them separately.
Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places. While most noneroded soils are very stony, most of the surface stones in this map unit have been removed by land use practices applied in the past.

Composition

Gilpin soil: 45 percent
Peabody soil: 20 percent
Inclusions: 35 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
4 to 9 inches—dark reddish brown silty clay
9 to 17 inches—dark reddish brown channery clay
17 to 23 inches—dark reddish brown channery silty clay

Bedrock:
23 inches—interbedded yellow siltstone and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Peabody—moderately slow or slow
Available water capacity: Gilpin—low or moderate; Peabody—moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Peabody—high
Hazard of erosion: Very severe
Slope class: Very steep

Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Peabody—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the Peabody soil
Organic matter content in the surface layer: Low to moderate
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Peabody—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Yellowish brown soils that do not have an argillic horizon
- Soils that are less than 20 inches deep
- Very stony soils
- Areas of rock outcrop
- Soils that are not so well drained and are near springs and seeps
- Soils that have more than 35 percent rock fragments in the control section

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 35 percent
- Vandalia and similar soils that formed in colluvium and are on footslopes and narrow benches
- Soils that are not severely eroded

Use and Management

Uses: Most areas of these soils are used as pasture. Some of the pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- These soils should not be used for cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope is a management concern.
- Erosion is a very severe hazard if the sod is removed by overgrazing.

Management considerations:
- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- If areas can be safely accessed, lime and fertilizer should be applied according to the results of soil tests.
- Animals should be kept off seeded areas until grasses have become well established.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Converting pasture to woodland is the most effective way to control erosion in areas of this map unit if suitable pasture is available in less sloping areas.

Woodland

Potential productivity: Gilpin—site index of 80 for northern red oak; Peabody—site index of 70 for northern red oak

Management concerns:

- The excessive slope, the severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:

- Only a limited acreage of this map unit is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Logging roads may need to be graveled in areas of the Peabody soil.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development

Suitability: Unsuited

Management concerns:

- The excessive slope and the very severe hazard of erosion are management concerns in areas of the Gilpin and Peabody soils.
- The high shrink-swell potential and a hazard of slippage are additional concerns in areas of the Peabody soil.

Management considerations:

- Because of the slope, these soils are generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Peabody soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Peabody soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

GmF—Gilpin-Peabody complex, 35 to 65 percent slopes, very stony

Setting

Landscape position: Very steep, convex, dissected upland side slopes
Note: Stones cover 0.1 to 3.0 percent of the soil surface
Note: The Gilpin and Peabody soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Gilpin soil: 45 percent
Peabody soil: 20 percent

Inclusions: 35 percent

Typical Profile

Gilpin

Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Peabody

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

Subsoil:
4 to 9 inches—dark reddish brown silty clay
9 to 17 inches—dark reddish brown channery clay
17 to 23 inches—dark reddish brown channery silty clay

Bedrock:
23 inches—interbedded yellow siltstone and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Peabody—moderately slow or slow
Available water capacity: Gilpin—low or moderate; Peabody—moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Peabody—high
Hazard of erosion: Very severe
Slope class: Very steep
Stoniness: Very stony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Peabody—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the Peabody soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Peabody—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Yellowish brown soils that do not have an argillic horizon
- Soils that are less than 20 inches deep
- Areas where stones cover more than 3 percent of the soil surface
- Areas of rock outcrop

- Soils that are not so well drained and are near springs and seeps
- Soils that have more than 35 percent rock fragments in the control section

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 35 percent
- Vandalia and similar soils that formed in colluvium and are on footslopes and narrow benches
- Areas where stones cover less than 0.1 percent of the soil surface

Use and Management

Uses: Most areas of these soils are wooded. A few areas are used as pasture, and some pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- This map unit should not be used for cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope and the very severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Gilpin—site index of 80 for northern red oak; Peabody—site index of 70 for northern red oak
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Logging roads may need to be graveled in areas of the Peabody soil.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns in areas of this map unit.
- The high shrink-swell potential and a hazard of slippage are additional concerns in areas of the Peabody soil.

Management considerations:
- Because of the slope, these soils are generally unsuited to building site development.

- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Peabody soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Peabody soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: 7s
Hydric soil: No

GoF—Gilpin-Peabody-Rock outcrop complex, 35 to 65 percent slopes, very stony

Setting

Landscape position: Very steep, convex, dissected upland side slopes; throughout the survey area
Note: Stones cover 0.1 to 3.0 percent of the soil surface
Note: The Gilpin and Peabody soils and Rock outcrop occur as areas so intermingled that it was not practical to map them separately.

Composition

Gilpin soil: 40 percent
Peabody soil: 20 percent
Rock outcrop: 10 percent
Inclusions: 30 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
4 to 9 inches—dark reddish brown silty clay
9 to 17 inches—dark reddish brown channery clay
17 to 23 inches—dark reddish brown channery silty clay

Bedrock:
23 inches—interbedded yellow siltstone and fine grained sandstone

Rock outcrop

The Rock outcrop consists mainly of gray or grayish brown, medium grained or coarse grained sandstone.

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Peabody—moderately slow or slow
Available water capacity: Gilpin—low or moderate; Peabody—moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Peabody—high
Hazard of erosion: Very severe
Slope class: Very steep
Stoniness: Very stony
Rockiness: 10 percent rock outcrop
Natural fertility: Gilpin—low or moderate; Peabody—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the Peabody soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Peabody—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Yellowish brown soils that do not have an argillic horizon
- Soils that are less than 20 inches deep
- Areas where stones or boulders cover more than 3 percent of the soil surface
- Soils that have more than 35 percent rock fragments in the control section
- Soils that are not so well drained and are near springs and seeps
- Severely eroded soils that have been mainly used as pasture

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 35 percent
- Vandalia and similar soils on footslopes
- Lily and similar soils on side slopes and commonly adjacent to areas of Rock outcrop
- Areas that include less than 10 percent Rock outcrop

Use and Management

Uses: Most areas of this map unit are wooded. A few areas are used as pasture, and some pastured areas are reverting to woodland.

Cropland

Suitability: Unsuited
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the Rock outcrop are management concerns.

Management considerations:
- This map unit should not be used for cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; poorly suited to pasture

Management concerns:
- The excessive slope and the Rock outcrop are management concerns.
- Erosion is a very severe hazard if the sod is removed by overgrazing.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland

Potential productivity: Gilpin—site index of 80 for northern red oak; Peabody—site index of 70 for northern red oak

Management concerns:
- The excessive slope, the very severe hazard of erosion, the Rock outcrop, and the equipment limitation are management concerns.

Management considerations:
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- The Rock outcrop should be considered when the location of roads and landing sites is planned.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Logging roads may need to be graveled in areas of the Peabody soil.
- Landings should be located in the less sloping areas of the Gilpin soil.
- Short escarpments in the map unit may interfere with the operation of harvesting equipment.

Community Development

Suitability: Unsuited

Management concerns:
- The excessive slope, the very severe hazard of erosion, and the Rock outcrop are management concerns in this map unit.
- The high shrink-swell potential and the hazard of slippage are additional concerns in areas of the Peabody soil.

Management considerations:
- Because of the slope, this map unit is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- The location of roads should be planned to avoid the areas of Rock outcrop.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Peabody soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Peabody soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: Gilpin and Peabody—7s; Rock outcrop—not assigned

Hydric soil: No

GpC—Gilpin-Upshur complex, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, dissected upland ridgetops
Note: The Gilpin and Upshur soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Gilpin soil: 55 percent
Upshur soil: 25 percent
Inclusions: 20 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Gilpin—low or moderate; Upshur—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Upshur—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil
Organic matter content in the surface layer: Moderate

Surface runoff: Medium or high
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Upshur—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Severely eroded soils
- Soils that are less than 20 inches deep

Nonlimiting inclusions:
- Moderately well drained Coolville and Tilsit soils in less sloping areas
- Soils with a very silty surface layer and subsoil that are cumulatively less than 24 inches thick; generally on ridgetops adjacent to the Ohio River
- Soils capped with as much as 30 inches of alluvial material; in a nonflooded terrace position, commonly adjacent to large streams

Use and Management

Uses: Most areas of these soils have been cleared and are used for hay or pasture. Some areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion in overgrazed areas and the establishment and maintenance of a mixture of grasses and legumes are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Gilpin—site index of 80 for northern red oak; Upshur—site index of 65 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails is a management concern.
- The Upshur soil is slippery and sticky when wet.

Management considerations:
- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If possible, equipment use should be restricted during wet periods when the Upshur soil is soft and slippery.

- Logging roads constructed in areas of the Upshur soil should be graveled and, in some areas, landings should be stabilized because the soil has a sticky and plastic subsoil.
- Site preparation following harvest and immediate establishment of the new forest for tree crop production reduce plant competition.
- Carefully managed reforestation helps to control undesirable understory plants.

Community Development
Suitability: Limited
Management concerns:
- The slope and the hazard of erosion are management concerns affecting community development in areas of the Gilpin and Upshur soils.
- The depth to bedrock is an additional limitation in areas of the Gilpin soil.
- The clayey subsoil, low strength, the hazard of slippage, and the shrink-swell potential are additional concerns in areas of the Upshur soil.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Increasing the size of the absorption area and backfilling with gravel help to compensate for the restricted permeability on sites for septic tank absorption fields in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Topsoil should be stockpiled for use in revegetation.
- Revegetating after construction with stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: Gilpin—3e; Upshur—4e
Farmland of statewide importance: Yes
Hydric soil: No

GpD—Gilpin-Upshur complex, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, dissected upland ridgetops and upper side slopes
Note: The Gilpin and Upshur soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Gilpin soil: 55 percent
Upshur soil: 25 percent
Inclusions: 20 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Gilpin—low or moderate; Upshur—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Upshur—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium or high
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Upshur—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Severely eroded soils

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent

- Soils having a very silty surface layer and subsoil that are cumulatively less than 20 inches deep; generally on ridgetops adjacent to the Ohio River
- Peabody soils in similar landscape positions

Use and Management

Uses: Most areas have been cleared for hay and pasture. Some areas remain in woodland or are reverting to woodland (fig. 5).

Cropland
Suitability: Limited
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion in overgrazed areas and the establishment and maintenance of a mixture of grasses and legumes are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Figure 5.—Timber in an area of Gilpin-Upshur complex, 15 to 25 percent slopes, in the Chief Cornstalk Wildlife Management Area in Mason County. The age of this stand represents many areas that have reverted to woodland from farmland in the past 75 years.

- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Gilpin—site index of 80 for northern red oak; Upshur—site index of 74 for northern red oak
Management concerns:
- The slope, the hazard of erosion on logging roads and skid trails, and the equipment limitation are management concerns in areas of both soils.
- The Upshur soil is slippery and sticky when wet.

Management considerations:
- Building roads and skid trails on the contour helps to control erosion.
- If possible, equipment use should be restricted during wet periods when the Upshur soil is soft and slippery.
- Logging roads constructed in areas of the Upshur soil should be graveled and, in some areas, landings should be stabilized because the soil has a sticky and plastic subsoil.
- Seeding logging roads, landings, and areas that have been cut and filled and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
- The slope and the hazard of erosion are management concerns affecting community development in areas of the Gilpin and Upshur soils.
- The depth to bedrock is an additional limitation in areas of the Gilpin soil.
- The clayey subsoil, low strength, the hazard of slippage, and the shrink-swell potential are additional concerns in areas of the Upshur soil.

Management considerations:
- Because of the slope, this map unit is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling.

- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: Gilpin—4e; Upshur—6e
Farmland of statewide importance: Yes
Hydric soil: No

GpD3—Gilpin-Upshur complex, 15 to 25 percent slopes, severely eroded

Setting

Landscape position: Moderately steep, convex, dissected upland ridgetops and upper side slopes
Note: The Gilpin and Upshur soils occur as areas so intermingled that it was not practical to map them separately.
Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Gilpin soil: 55 percent
Upshur soil: 25 percent
Inclusions: 20 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Gilpin—low or moderate; Upshur—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Very severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Upshur—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil
Organic matter content in the surface layer: Low to moderate
Surface runoff: Very high
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Upshur—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Very severely eroded soils

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Soils that are not severely eroded
- Peabody soils in similar landscape positions

Use and Management

Uses: Most areas of these Gilpin and Upshur soils have been cleared and are used for hay or pasture. Some areas are wooded or are reverting to woodland.

Cropland
Suitability: Limited
Management concerns:
- Erosion is a very severe hazard.

Management considerations:
- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Lime and fertilizer should be applied according to the results of soil tests.
- Gullied areas may need to be regraded before vegetation can be established.
- Once vegetation is established, a conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Suited

Management concerns:

- The very severe hazard of erosion in overgrazed areas, the establishment and maintenance of a mixture of grasses and legumes, and the prevention of overgrazing are management concerns.

Management considerations:

- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Once vegetation is established, proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland

Potential productivity: Gilpin—site index of 80 for northern red oak; Upshur—site index of 74 for northern red oak

Management concerns:

- The slope, erosion on logging roads and skid trails, and the equipment limitation are management concerns.
- The Upshur soil is slippery and sticky when wet.

Management considerations:

- Only a limited acreage of this map unit is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- If possible, equipment use should be restricted during wet periods when the Upshur soil is soft and slippery.
- Logging roads constructed in areas of the Upshur soil should be graveled and, in some areas, landings should be stabilized because the soil has a sticky and plastic subsoil.
- Building roads and skid trails on the contour helps to control erosion.
- Seeding logging roads, landings, and areas that have been cut and filled and installing water bars and culverts help to control erosion.
- Leaving trees in areas along streams and rivers helps to stabilize streambanks.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development

Suitability: Limited

Management concerns:

- The slope and the hazard of erosion are management concerns affecting community development in areas of the Gilpin and Upshur soils.
- The depth to bedrock is an additional limitation in areas of the Gilpin soil.
- The clayey subsoil, low strength, the hazard of slippage, and the shrink-swell potential are additional concerns in areas of the Upshur soil.

Management considerations:

- Extra measures should be taken to prevent further erosion in construction areas.
- If possible, construction work should be avoided during wet periods, when the soil is very soft and slippery and can be easily damaged.

- Because of the slope, this map unit is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling.
- An offsite source of topsoil will be necessary for reestablishment of vegetation after construction is completed.

Interpretive Groups

Land capability classification: Gilpin—6e; Upshur—7e
Hydric soil: No

GpE—Gilpin-Upshur complex, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex, dissected upland side slopes
Note: The Gilpin and Upshur soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Gilpin soil: 50 percent
Upshur soil: 20 percent
Inclusions: 30 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 42 inches—dark reddish brown channery silty clay

Bedrock:
42 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Gilpin—low or moderate; Upshur—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Upshur—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very rapid
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Upshur—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Soils that are less than 20 inches deep
- Areas where stones cover more than 1 percent of the soil surface or small areas of rock outcrop
- Soils that are not so well drained and are near springs and seeps
- Small areas of severely eroded soils

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 25 percent
- Vandalia soils on footslopes and benches

Use and Management

Uses: Many areas of this map unit are wooded. Other areas are used as pasture, and some of the pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited

Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, this map unit is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope and the very severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Springs and seeps at the base of slopes may have potential for development into livestock watering sites.

Woodland
Potential productivity: Gilpin—site index of 80 for northern red oak; Upshur—site index of 74 for northern red oak
Management concerns:
- The excessive slope, the hazard of erosion on logging roads and skid trails, and the equipment limitation are management concerns in areas of the Gilpin and Upshur soils.
- The Upshur soil is slippery and sticky when wet, and plant competition may be a concern on north aspects in areas of the Upshur soil.

Management considerations:
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- If possible, equipment use should be restricted during wet periods when the Upshur soil is soft and slippery.
- Logging roads constructed in areas of the Upshur soil should be graveled because the soil has a sticky and plastic subsoil.
- Because of the hazard of erosion, haul roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Landings should be located in the less sloping areas of the Gilpin soil.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted, especially on north aspects in areas of the Upshur soil.

Community Development
Suitability: Unsuited
Management concerns:
- The slope and the hazard of erosion are management concerns affecting community development in areas of the Gilpin and Upshur soils.

- The depth to bedrock is an additional limitation in areas of the Gilpin soil.
- The clayey subsoil, low strength, the hazard of slippage, and the shrink-swell potential are additional concerns in areas of the Upshur soil.

Management considerations:
- Because of the slope, this map unit is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: Gilpin—6e; Upshur—7e
Hydric soil: No

GpE3—Gilpin-Upshur complex, 25 to 35 percent slopes, severely eroded

Setting

Landscape position: Steep, convex, dissected upland side slopes
Note: The Gilpin and Upshur soils occur as areas so intermingled that it was not practical to map them separately.
Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Gilpin soil: 50 percent
Upshur soil: 20 percent
Inclusions: 30 percent

Typical Profile

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 42 inches—dark reddish brown channery silty clay

Bedrock:
42 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Gilpin—low or moderate; Upshur—moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Gilpin—low or moderate; Upshur—moderate or high
Reaction: In unlimed areas, extremely acid to strongly acid in the Gilpin soil and very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil
Organic matter content in the surface layer: Low to moderate
Surface runoff: Very high
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches
Parent material: Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale; Upshur—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Soils that are less than 20 inches deep
- Areas where stones cover more than 1 percent of the soil surface or small areas of rock outcrop
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 25 percent
- Vandalia soils on footslopes and benches
- Soils that are not severely eroded

Use and Management

Uses: Many areas of these Gilpin and Upshur soils are used as pasture. Some of the pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, this map unit is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; poorly suited to pasture

Management concerns:

- The very severe hazard of erosion in overgrazed areas, the establishment and maintenance of a mixture of grasses and legumes, and the prevention of overgrazing are management concerns.

Management considerations:

- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Once vegetation is established, proper stocking rates, controlled grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland

Potential productivity: Gilpin—site index of 80 for northern red oak; Upshur—site index of 74 for northern red oak

Management concerns:

- The excessive slope, erosion on logging roads and skid trails, and the equipment limitation are management concerns.
- The Upshur soil is slippery and sticky when wet, and plant competition may be a concern on north aspects in areas of the Upshur soil.

Management considerations:

- Only a limited acreage of this map unit is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- If possible, equipment use should be restricted during wet periods when the Upshur soil is soft and slippery.
- Logging roads constructed in areas of the Upshur soil should be graveled because the soil has a sticky and plastic subsoil.
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated. Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Landings should be located in the less sloping areas of the Gilpin soil.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted, especially on north aspects in areas of the Upshur soil.

Community Development

Suitability: Unsuited

Management concerns:

- The slope and the hazard of erosion are management concerns affecting community development in areas of the Gilpin and Upshur soils.
- The depth to bedrock is an additional limitation in areas of the Gilpin soil.
- The clayey subsoil, low strength, the hazard of slippage, and the shrink-swell potential are additional concerns in areas of the Upshur soil.

Management considerations:
- Extra measures should be taken to prevent further erosion in construction areas.
- If possible, construction work should be avoided during wet periods, when the soil is very soft and slippery and can be easily damaged.
- Because of the slope, this map unit is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

GsA—Ginat silt loam, 0 to 3 percent slopes

Setting

Landscape position: Depressions on terraces along the Ohio River

Composition

Ginat soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown silt loam with dark grayish brown iron depletions and strong brown iron concentrations
5 to 9 inches—grayish brown silt loam with strong brown iron accumulations

Subsoil:
9 to 15 inches—light brownish gray silt loam with yellowish brown iron accumulations
15 to 35 inches—light brownish gray silty clay loam with yellowish brown and strong brown iron accumulations
35 to 65 inches—light brownish gray silty clay loam with yellowish brown iron accumulations

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Within a depth of 1 foot in undrained areas
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: None
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high

Reaction: In unlimed areas, very strongly acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained soils that have a clayey substratum
- Soils that are ponded for long periods of time

Nonlimiting inclusions:
- Well drained Wheeling soils
- Moderately well drained Gallipolis soils
- Somewhat poorly drained Taggart soils

Use and Management

Uses: Most areas of this Ginat soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded or in swamps (fig. 6).

Cropland
Suitability: Suited in drained areas
Management concerns:
- The seasonal wetness and the ponding are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Applying a system of conservation tillage, including hay in crop rotations, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth.

Figure 6.—An area of Ginat silt loam, 0 to 3 percent slopes, which has been developed and is used as wetland wildlife habitat.

• Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
• The seasonal high water table and the ponding are management concerns.
Management considerations:
• Measures that maintain existing drainage systems are needed.
• Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm are major pasture management needs.
• The hay and pasture plants that can withstand the periodic ponding and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 95 for pin oak
Management concerns:
• The seasonal high water table is a management concern.
Management considerations:
• Equipment use should be restricted during wet periods when the soil is soft.
• The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited
Management concerns:
• The ponding, the seasonal high water table, and low soil strength are limitations affecting urban development.
Management considerations:
• The soils in adjacent areas that are not so wet are better suited to building site development and roads.
• Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: Yes

GtA—Ginat silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Depressions and abandoned channels on high flood plains, mainly along the Kanawha River

Composition

Ginat soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown silt loam with dark grayish brown iron depletions and strong brown iron concentrations
5 to 9 inches—grayish brown silt loam with strong brown iron accumulations

Subsoil:
9 to 15 inches—light brownish gray silt loam with yellowish brown iron accumulations
15 to 35 inches—light brownish gray silty clay loam with yellowish brown and strong brown iron accumulations
35 to 65 inches—light brownish gray silty clay loam with yellowish brown iron accumulations

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Within a depth of 1 foot in undrained areas
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: None
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained soils that have a clayey substratum
- Soils that are ponded for long periods of time

Nonlimiting inclusions:
- Well drained Elk soils
- Moderately well drained Gallipolis soils
- Somewhat poorly drained Taggart soils

Use and Management

Uses: Most areas of this Ginat soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded or in swamps.

Cropland
Suitability: Suited in drained areas
Management concerns:
- The seasonal wetness, the ponding, and the flooding during the winter and early spring months are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Applying a system of conservation tillage, including hay in crop rotations, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited

Management concerns:
- The seasonal high water table, the ponding, and the flooding are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm are major pasture management needs.
- The hay and pasture plants that can withstand the periodic ponding and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 95 for pin oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- Equipment use should be restricted during wet periods when the soil is soft.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Unsuited
Management concerns:
- The ponding, the flooding, the seasonal high water table, and low soil strength are limitations affecting urban development.

Management considerations:
- The soils in adjacent areas that are not on the flood plains are better suited to building site development and roads.
- Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: Yes

GvA—Ginat silty clay loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Broad depressions and linear, abandoned stream channels on high flood plains, mainly along the Kanawha River

Composition

Ginat soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown silty clay loam with dark grayish brown iron depletions and strong brown iron concentrations
5 to 9 inches—grayish brown silt loam with strong brown iron accumulations

Subsoil:
9 to 15 inches—light brownish gray silt loam with yellowish brown iron accumulations

15 to 35 inches—light brownish gray silty clay loam with yellowish brown and strong brown iron accumulations
35 to 65 inches—light brownish gray silty clay loam with yellowish brown iron accumulations

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Within a depth of 1 foot in undrained areas
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: None
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Soils that are ponded for long periods of time
- Soils with less profile development than is typical for the Ginat soils

Nonlimiting inclusions:
- Soils that have a surface layer of silt loam
- Well drained Elk soils
- Moderately well drained Gallipolis soils
- Somewhat poorly drained Taggart soils

Use and Management

Uses: Most areas of this Ginat soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded or in swamps.

Cropland
Suitability: Suited in drained areas
Management concerns:
- The seasonal wetness, the ponding, and the flooding during the winter and early spring months are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Applying a system of conservation tillage, including hay in crop rotations, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The seasonal high water table, the ponding, and the flooding are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm are major pasture management needs.
- The hay and pasture plants that can withstand the periodic ponding and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 95 for pin oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- Equipment use should be restricted during wet periods when the soil is soft.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Unsuited
Management concerns:
- The flooding, the ponding, the seasonal wetness, and low soil strength are limitations affecting urban development.

Management considerations:
- The soils in adjacent areas that are not so wet are better suited to building site development and roads.
- Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: Yes

GxB—Glenford silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping terraces along the lower Kanawha River

Composition

Glenford soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
7 to 16 inches—yellowish brown silty clay loam
16 to 28 inches—yellowish brown silty clay loam with light brownish gray iron depletions
28 to 55 inches—dark yellowish brown silt loam with light brownish gray iron depletions

Substratum:
55 to 65 inches—yellowish brown silt loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained

Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, strongly acid or moderately acid in the surface layer, strongly acid to neutral in the subsoil, and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Somewhat poorly drained or poorly drained soils on nearly level slopes or in slight depressions

Nonlimiting inclusions:
- Soils with iron depletions more than 10 inches below the top of the argillic horizon

Use and Management

Uses: Most areas of this Glenford soil are used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.
- The seasonal wetness may delay tillage and planting in the spring.

Management considerations:
- Delaying tillage until the soil is reasonably dry helps to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods and the moderate hazard of erosion are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 86 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- This map unit is not used as woodland.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness, the moderately slow permeability, and low strength are limitations affecting urban development.

Management considerations:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- An alternative septic tank system that compensates for the seasonal high water table and the moderately slow permeability should be considered.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

GxC—Glenford silt loam, 8 to 15 percent slopes

Setting

Landscape position: Sloping terraces along the lower Kanawha River

Composition

Glenford soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
7 to 16 inches—yellowish brown silty clay loam
16 to 28 inches—yellowish brown silty clay loam with light brownish gray iron depletions
28 to 55 inches—dark yellowish brown silt loam with light brownish gray iron depletions

Substratum:
55 to 65 inches—yellowish brown silt loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate

Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, strongly acid or moderately acid in the surface layer, strongly acid to neutral in the subsoil, and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Somewhat poorly drained or poorly drained soils in less sloping areas, in slight depressions, or at the base of slopes

Nonlimiting inclusions:
- Soils with iron depletions more than 10 inches below the top of the argillic horizon
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Glenford soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Limited
Management concerns:
- The severe hazard of erosion and the seasonal wetness are management concerns.

Management considerations:
- The seasonal wetness may delay tillage and planting in the spring.
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Crop rotations that include grasses and legumes and small grain will help to control runoff and water erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion and the seasonal wetness are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 86 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- None of the acreage of this soil is used as woodland.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Suited

Management concerns:
- The slope, the seasonal wetness, the moderately slow permeability, and low strength are limitations affecting urban development.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- An alternative septic tank system that compensates for the seasonal high water table and the moderately slow permeability should be considered.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

HaA—Hackers silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Nearly level, high flood plains along creeks; throughout the survey area

Composition

Hackers soil: 85 percent
Inclusions: 15 percent

Typical Profile

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

Subsoil:
8 to 15 inches—reddish brown silt loam
15 to 47 inches—yellowish red silty clay loam
47 to 55 inches—reddish brown silt loam

Substratum:
55 to 65 inches—reddish brown silt loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to slightly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low

Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Senecaville soils in depressions
- Small areas of soils with slopes of more than 3 percent
- Well drained Moshannon soils in the lower landscape positions

Nonlimiting inclusions:
- Soils that have a fine-loamy subsoil and are most commonly adjacent to the stream channel

Use and Management

Uses: This Hackers soil generally is used as cropland, hayland, or pasture. A few small areas are wooded.

Cropland
Suitability: Well suited (fig. 7)
Management concerns:
- The flooding is a management concern.

Management considerations:
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- A system of conservation tillage that leaves crop residue on the surface helps to control water erosion, prevent crusting during periods of heavy rainfall, and increase the rate of water infiltration.

Figure 7.—An area of Hackers silt loam, 0 to 3 percent slopes, rarely flooded, used for tobacco and hay production. Hackers soils are well suited to all cultivated crops grown in the survey area.

- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- The hazard of erosion if pastures are overgrazed, streambank erosion, and the flooding are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding is a management concern.

Management considerations:
- Although this soil is subject to rare flooding, it is used as a building site along most creeks in the survey area.
- Providing raised fill material and adding coarse grained base material help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

HaB—Hackers silt loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: Gently sloping, high flood plains along creeks; throughout the survey area

Composition

Hackers soil: 90 percent
Inclusions: 10 percent

Typical Profile

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

Subsoil:
8 to 15 inches—reddish brown silt loam
15 to 47 inches—yellowish red silty clay loam
47 to 55 inches—reddish brown silt loam

Substratum:
55 to 65 inches—reddish brown silt loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to slightly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Senecaville soils in depressions
- Well drained Moshannon soils in the lower landscape positions

Nonlimiting inclusions:
- Soils that have a fine-loamy subsoil
- Small areas of soils that have slopes of less than 3 percent

Use and Management

Uses: This Hackers soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The flooding and the moderate hazard of erosion are management concerns.

Management considerations:
- Crop rotations that include grasses or legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited

Management concerns:
- The hazard of erosion if pastures are overgrazed, streambank erosion, and the flooding are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland

Potential productivity: Site index of 85 for northern red oak

Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development

Suitability: Limited

Management concerns:
- The flooding and the moderate hazard of erosion are management concerns.

Management considerations:
- Although this soil is subject to rare flooding, it is used as a building site along most creeks in the survey area.
- Providing raised fill material and adding coarse grained base material help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

HoA—Huntington silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Nearly level flood plains along the Ohio River

Composition

Huntington soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 11 inches—very dark grayish brown silt loam

Subsoil:
11 to 31 inches—dark brown silty clay loam
31 to 60 inches—dark yellowish brown silty clay loam

Substratum:
60 to 65+ inches—dark yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to slightly alkaline
Organic matter content in the surface layer: High
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lindside soils
- Poorly drained Melvin soils
- Huntington soils that are subject to frequent flooding

Nonlimiting inclusions:
- Well drained Ashton soils
- Huntington soils that form a natural levee in the higher landscape positions, which may reduce the frequency of flooding, and that may contain more fine sand throughout the profile

Use and Management

Uses: Most areas of this Huntington soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Well suited (fig. 8)
Management concerns:
- This soil is occasionally flooded in late winter and early spring.

Management considerations:
- The flooding generally does not damage crops.
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Figure 8.—Corn harvest in an area of Huntington silt loam, 0 to 3 percent slopes, occasionally flooded, in Mason County. Huntington soils consistently produce some of West Virginia's highest yields for cultivated crops.

Pasture and Hayland

Suitability: Suited

Management concerns:

- Erosion is a hazard if pastures are overgrazed.
- The occasional flooding in winter and early spring may deposit debris on the grassland.

Management considerations:

- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland

Potential productivity: Site index of 85 for northern red oak

Management concerns:

- No major management concerns affect planting or harvesting.
- The wooded areas are generally limited to a narrow strip along the riverbank.

Management considerations:

- Trees along streams and rivers should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.

- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Poorly suited
Management concerns:
- The flooding and the potential for frost action are management concerns.

Management considerations:
- The included areas on the natural levees may appear attractive as building sites, but most of the areas are on a 100-year flood plain.
- Soils in adjacent areas out of the flood plain are better suited to building site development and roads.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

HuA—Huntington silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Nearly level flood plains along the Kanawha River

Composition

Huntington soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 11 inches—very dark grayish brown silt loam

Subsurface layer:
11 to 31 inches—dark brown silty clay loam

Subsoil:
31 to 60 inches—dark yellowish brown silty clay loam

Substratum:
60 to 65+ inches—dark yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to slightly alkaline
Organic matter content in the surface layer: High

Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lindside and Gallipolis soils
- Poorly drained Melvin soils
- Huntington soils that are occasionally or frequently flooded

Nonlimiting inclusions:
- Well drained Ashton and Elk soils
- Huntington soils that form a natural levee in the higher landscape positions, which may reduce the frequency of flooding, and that may contain more fine sand throughout the profile

Use and Management

Uses: Most areas of this Huntington soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Well suited
Management concerns:
- This soil is subject to flooding in late winter and early spring.

Management considerations:
- The flooding only rarely occurs and generally does not damage crops.
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.
- The flooding may deposit debris on the grassland in winter.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major management concerns affect planting or harvesting.
- The wooded areas are generally limited to a narrow strip along the riverbank.

Management considerations:
- Trees along streams and rivers should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Poorly suited
Management concerns:
- The flooding and the potential for frost action are management concerns.

Management considerations:
- The included areas on the natural levees may appear attractive as building sites, but most of the areas are on a 500-year flood plain.
- Soils in adjacent areas out of the flood plain are better suited to building site development and roads.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

KnA—Kanawha loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Nearly level, high flood plains along creeks; in the southern part of the survey area

Composition

Kanawha soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 11 inches—dark brown silt loam

Subsoil:
11 to 45 inches—yellowish brown clay loam and loam

Substratum:
45 to 65 inches—yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky

Natural fertility: High
Reaction: In unlimed areas, strongly acid or moderately acid in the surface layer and moderately acid or slightly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-loamy alluvium

Minor Components

Limiting inclusions:
- Moderately well drained soils in depressions
- Small areas of soils that have slopes of more than 3 percent
- Well drained Chagrin soils that are subject to more frequent flooding and are in the lower landscape positions

Nonlimiting inclusions:
- Small areas of the rarely flooded Sensabaugh soils on alluvial fans

Use and Management

Uses: This Kanawha soil is used as cropland, hayland, or pasture. A few small areas are wooded.

Cropland
Suitability: Well suited
Management concerns:
- The flooding is a management concern.

Management considerations:
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.
- A system of conservation tillage that leaves crop residue on the surface helps to control water erosion, prevent crusting during periods of heavy rainfall, and increase the rate of water infiltration.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion in overgrazed areas, streambank erosion, and the flooding are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.

- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The flooding is a management concern.

Management considerations:
- Although this soil is subject to rare flooding, it is used as a building site along most creeks in the survey area.
- Providing raised fill material and adding coarse grained base material help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No

LaB—Lakin loamy fine sand, 3 to 8 percent slopes

Setting

Landscape position: On gently sloping, dunelike deposits on terraces and on the adjacent hillsides along the Ohio River

Composition

Lakin soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy fine sand

Subsurface layer:
7 to 11 inches—yellowish brown loamy fine sand

Subsoil:
11 to 17 inches—yellowish brown loamy sand that has brown lamellae and lumps
17 to 60 inches—yellowish brown loamy sand that has dark brown lamellae

Substratum:
60 to 80 inches—brown medium and fine sand

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Very low to moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky

Natural fertility: Low or moderate
Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 5 feet
Parent material: Sandy windblown material and alluvium

Minor Components

Limiting inclusions:
- Soils with little or no lamellae development
- Soils with slopes of more than 8 percent
- Somewhat poorly drained or poorly drained soils that are fine-loamy and in closed depressions

Nonlimiting inclusions:
- Well drained Duncannon and Chavies soils
- Soils with slopes of less than 3 percent

Use and Management

Uses: Most areas of this Lakin soil are wooded. Some areas are used as cropland or pasture.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion and droughtiness are management concerns.

Management considerations:
- Contour stripcropping, a cropping sequence that includes hay, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion in overgrazed areas and the droughtiness are management concerns.

Management considerations:
- Proper stocking rates and a rotation grazing system help to control erosion and prevent overgrazing.
- Moving livestock to other areas during droughty periods helps to keep pastures in good condition.

Woodland
Potential productivity: Site index of 60 for northern red oak
Management concerns:
- The moderate hazard of erosion and the seedling mortality rate are management concerns.

Management considerations:
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during dry periods.

Community Development
Suitability: Suited

Management concerns:
- The instability of cutbanks, the poor water-holding capacity, seepage, and the poor filtering capacity are management concerns.

Management considerations:
- Excavation for foundations is not difficult; however, it may be hazardous because vertically cut walls can collapse.
- Increasing the organic matter content helps to improve the water-holding capacity of the soil.
- Ground water may become contaminated if septic tank absorption fields are installed in sandy soils.
- Septic tank absorption fields should be connected to a public sewer line if access is possible.

Interpretive Groups

Land capability classification: 3s
Farmland of local importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

LaC—Lakin loamy fine sand, 8 to 15 percent slopes

Setting

Landscape position: On strongly sloping, dunelike deposits on stream terraces and on the adjacent hillsides along the Ohio River

Composition

Lakin soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy fine sand

Subsurface layer:
7 to 11 inches—yellowish brown loamy fine sand

Subsoil:
11 to 17 inches—yellowish brown loamy sand that has brown lamellae and lumps
17 to 60 inches—yellowish brown loamy sand that has dark brown lamellae

Substratum:
60 to 80 inches—brown medium and fine sand

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Very low to moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low or moderate

Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Sandy windblown material and alluvium

Minor Components

Limiting inclusions:
- Soils with little or no lamellae development
- Soils with slopes of more than 15 percent
- Somewhat poorly drained or poorly drained soils that are fine-loamy and are in closed depressions

Nonlimiting inclusions:
- Well drained Duncannon and Chavies soils
- Soils with slopes of less than 8 percent

Use and Management

Uses: Most areas of this Lakin soil are wooded. Some areas are used as cropland or pasture.

Cropland
Suitability: Poorly suited
Management concerns:
- The severe hazard of erosion and droughtiness are management concerns.

Management considerations:
- Contour stripcropping, a crop sequence that includes hay, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion in overgrazed areas and droughtiness are management concerns.

Management considerations:
- Proper stocking rates and a rotation grazing system help to control erosion and prevent overgrazing.
- Moving livestock to other areas during droughty periods helps to keep pastures in good condition.

Woodland
Potential productivity: Site index of 60 for northern red oak
Management concerns:
- The severe hazard of erosion and the seedling mortality rate are management concerns.

Management considerations:
- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during dry periods.

Community Development

Suitability: Suited

Management concerns:

- The slope, the instability of cutbanks, the poor water-holding capacity, seepage, and the poor filtering capacity are management concerns.

Management considerations:

- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Excavation for foundations is not difficult; however, it may be hazardous because vertically cut walls can collapse.
- Increasing the organic matter content helps to improve the water-holding capacity of the soil.
- Ground water may become contaminated if septic tank absorption fields are installed in sandy soils.
- Septic tank absorption fields should be connected to a public sewer line if access is possible.

Interpretive Groups

Land capability classification: 4s
Farmland of local importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

LaD—Lakin loamy fine sand, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, dunelike deposits on stream terraces and on adjacent hillsides near the Ohio River

Composition

Lakin soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy fine sand

Subsurface layer:
7 to 11 inches—yellowish brown loamy fine sand

Subsoil:
11 to 17 inches—yellowish brown loamy sand that has brown lamellae and lumps
17 to 60 inches—yellowish brown loamy sand that has dark brown lamellae

Substratum:
60 to 80 inches—brown medium and fine sand

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Very low to moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe

Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low or moderate
Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Sandy windblown material and alluvium

Minor Components

Limiting inclusions:
- Soils with little or no lamellae development
- Soils with slopes of more than 25 percent
- Somewhat poorly drained or poorly drained soils that are fine-loamy and are in closed depressions

Nonlimiting inclusions:
- Well drained Duncannon soils
- Soils with slopes of less than 15 percent

Use and Management

Uses: Most areas of this Lakin soil are wooded. Some areas are used as cropland or pasture.

Cropland
Suitability: Poorly suited
Management concerns:
- The severe hazard of erosion and droughtiness are management concerns.

Management considerations:
- Contour stripcropping, a cropping sequence that includes hay, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion in overgrazed areas and droughtiness are management concerns.

Management considerations:
- Proper stocking rates and a rotation grazing system help to control erosion and to prevent overgrazing.
- Moving livestock to other areas during droughty periods helps to keep pastures in good condition.

Woodland
Potential productivity: Site index of 60 for northern red oak
Management concerns:
- The severe hazard of erosion and the seedling mortality rate are management concerns.

Management considerations:
- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.

- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- An irrigation system may be needed to help establish young trees during dry periods.

Community Development
Suitability: Limited
Management concerns:
- The slope, the instability of cutbanks, the poor water-holding capacity, seepage, and the poor filtering capacity are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Excavation for foundations is not difficult; however, it may be hazardous because vertically cut walls can collapse.
- Increasing the organic matter content helps to improve the water-holding capacity of the soil.
- Ground water may become contaminated if septic tank absorption fields are installed in sandy soils.
- Septic tank absorption fields should be connected to a public sewer line if access is possible.

Interpretive Groups

Land capability classification: 4s
Farmland of local importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

LbB—Lakin-Urban land complex, 0 to 8 percent slopes

Setting

Landscape position: Sandy terraces along the Ohio River; areas used for residential or commercial development
Note: The Lakin soil and areas of Urban land are so intricately mixed that it was not practical to map them separately.

Composition

Lakin soil: 45 percent
Urban land: 35 percent
Inclusions: 20 percent

Typical Profile

Lakin
Surface layer:
0 to 7 inches—brown loamy fine sand

Subsurface layer:
7 to 11 inches—yellowish brown loamy fine sand

Subsoil:
11 to 17 inches—yellowish brown loamy sand that has brown lamellae
17 to 60 inches—yellowish brown loamy sand that has dark brown lamellae

Substratum:
60 to 80 inches—brown medium and fine sand

Urban land

Urban land consists of areas covered by buildings, streets, parking lots, and other urban structures. A typical profile is not given because Urban land is a nonsoil area.

Soil Properties and Qualities

Drainage class: Lakin—excessively drained
Permeability: Lakin—rapid
Available water capacity: Lakin—very low to moderate
Depth to a seasonal high water table: Lakin—more than 6 feet
Flooding: None
Shrink-swell potential: Lakin—low
Hazard of erosion: Lakin—slight or moderate
Slope class: Nearly level or gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Lakin—low or moderate
Reaction: In unlimed areas, Lakin—moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Lakin—moderate
Surface runoff: Lakin—very low
Depth to bedrock: Lakin—more than 5 feet
Parent material: Sandy windblown material and alluvium in undisturbed areas

Minor Components

Limiting inclusions:
- Soils that have a seasonal high water table and are in drainageways or depressions
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Well drained Chavies soils

Use and Management

Uses: This map unit is used for community development. It is not suited to cropland, hayland, or pasture and is not rated for woodland productivity.

Community Development

Suitability: Suited
Management concerns:
- The rapid permeability, seepage, the instability of cutbanks, and droughtiness are management concerns.

Management considerations:
- The poor filtering capacity of this Lakin soil can result in the pollution of ground water.
- Both water supply and sanitary facilities should be connected to public water and sewer systems if access is possible.
- Because cutbanks are not stable and are subject to caving, trench walls should be reinforced.
- Drought-tolerant species should be selected when lawns and roadbanks are seeded.
- Mulching will help to control erosion and conserve moisture.

Interpretive Groups

Land capability classification: Lakin—3s; Urban land—not assigned
Hydric soil: No; however, map unit inclusions may be hydric soils

Ld—Landfills

Setting

This map unit consists of nearly level to strongly sloping areas that have been used for the disposal of waste and then covered with fill material. These areas include county and private landfills, a fly ash disposal site, and sites in the McClintic Wildlife Management Area that have potentially toxic materials buried and sealed in clay-lined fill material.

Composition

Landfills: 95 percent
Inclusions: 5 percent

Typical Profile

A typical profile is not given because the characteristics of the fill material vary. Most areas have a 3- to 4-foot-deep layer of loamy to clayey fill material over the waste material.

Soil Properties and Qualities

Drainage class: Dominantly well drained or moderately well drained
Permeability: Varies; often slow or very slow because heavy equipment has compacted the soil material
Available water capacity: Varies
Depth to a seasonal high water table: Dominantly more than 2.5 feet
Flooding: None
Shrink-swell potential: Varies
Hazard of erosion: Varies
Slope class: Nearly level to strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Varies
Reaction: In unlimed areas, varies
Organic matter content in the surface layer: Low
Surface runoff: Varies
Depth to bedrock: Varies, but generally more than 3 feet

Minor Components

Nonlimiting inclusions:
- Areas of natural soil near the edge of the map unit

Use and Management

Uses: This map unit is used as a landfill. It is not suited to most other uses.
Management concerns:
- Because of the impact on human and livestock safety, this map unit should remain in its current use as a disposal site or allowed to revegetate. It has been reseeded and marked with signs in the McClintic Wildlife Management Area where it is used for wildlife viewing or as a site for recreational activities.

Management considerations:
- The establishment of grasses or a cover crop adds esthetic value to the area and helps to protect the fill material against erosion.
- Lime and fertilizer should be applied according to soil test recommendations.
- Trees should not be planted or established in areas with potentially toxic material to limit the chance of roots puncturing the clay lining of the fill material.

- Applications of lime, fertilizer, and organic matter help to establish planted trees that will serve as windbreaks or privacy strips.
- The depth of the fill material should be determined before trees are planted to ensure that the disposed material is not uncovered during planting.

Interpretive Groups

Land capability classification: Not assigned
Hydric soil: No

LID—Lily fine sandy loam, 15 to 25 percent slopes

Setting

Landscape position: Ridgetops and upper side slopes; throughout the survey area

Composition

Lily soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed leaf litter and duff
1 to 6 inches—brown fine sandy loam

Subsurface layer:
6 to 11 inches—brownish yellow fine sandy loam

Subsoil:
11 to 19 inches—yellowish brown loam
19 to 25 inches—strong brown sandy clay loam

Substratum:
25 to 28 inches—yellowish brown channery fine sandy loam

Bedrock:
28 inches—yellow soft sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, strongly acid to extremely acid
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Parent material: Residuum derived from fine grained sandstone

Minor Components

Limiting inclusions:
- Well drained Upshur and Peabody soils
- Soils with slopes of more than 25 percent

Nonlimiting inclusions:
- Well drained Gilpin soils
- Well drained soils that are more than 40 inches deep; commonly in areas adjacent to the Allegheny and Gallia soils where erosion has cut down through the terrace deposits

Use and Management

Uses: This Lily soil is used as woodland or pasture.

Cropland
Suitability: Limited
Management concerns:
- The slope and the severe hazard of erosion are management concerns.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during dry periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 78 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails and the possibility of a higher seedling mortality rate on south-facing slopes are management concerns.

Management considerations:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and landings after the trees are logged help to prevent excessive erosion.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope and the depth to bedrock are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.

- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

LIE—Lily fine sandy loam, 25 to 35 percent slopes

Setting

Landscape position: Ridgetops and upper side slopes; throughout the survey area

Composition

Lily soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed leaf litter and duff
1 to 6 inches—brown fine sandy loam

Subsurface layer:
6 to 11 inches—brownish yellow fine sandy loam

Subsoil:
11 to 19 inches—yellowish brown loam
19 to 25 inches—strong brown sandy clay loam

Substratum:
25 to 28 inches—yellowish brown channery fine sandy loam

Bedrock:
28 inches—yellow, soft sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, strongly acid to extremely acid
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Parent material: Residuum derived from fine grained sandstone

Minor Components

Limiting inclusions:
- Well drained Upshur and Peabody soils

Nonlimiting inclusions:
- Well drained Gilpin soils
- Well drained soils that are more than 40 inches deep

Use and Management

Uses: This Lily soil is used as woodland or pasture.

Cropland
Suitability: Not suited
Management concerns:
- The slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture or hay helps to control erosion.

Pasture and Hayland
Suitability: Poorly suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, controlled grazing, and restricted use during dry periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 78 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails and the possibility of a higher seedling mortality rate on south-facing slopes are management concerns.

Management considerations:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and landings after the trees are logged help to prevent excessive erosion.

Community Development
Suitability: Unsuited
Management concerns:
- The slope and the depth to bedrock are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.

Interpretive Groups

Land capability classification: 6e
Hydric soil: No

LsA—Lindside silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: On flood plains along the Ohio River, near the mouth of the Kanawha River, and occasionally along tributaries; throughout the survey area

Composition

Lindside soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 11 inches—dark brown silt loam

Subsurface layer:
11 to 20 inches—dark yellowish brown silt loam

Subsoil:
20 to 42 inches—brown silt loam with grayish brown redox depletions

Substratum:
42 to 65+ inches—brown silty clay loam with light brownish gray redox depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral in the surface soil and subsoil and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Melvin soils
- Somewhat poorly drained soils
- The Lindside soils that are subject to frequent flooding; immediately adjacent to streams and rivers

Nonlimiting inclusions:
- Well drained Huntington, Ashton, and Elk soils in the higher landscape positions
- Moderately well drained Gallipolis soils, typically in the slightly higher landscape positions

Use and Management

Uses: This Lindside soil is used as cropland, hayland, or pasture. Only a few small areas are wooded.

Cropland

Suitability: Suited

Management concerns:

- The seasonal high water table and the occasional flooding in late winter and early spring are management concerns in areas used as cropland.

Management considerations:

- The flooding may delay spring planting or damage crops.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Delaying tillage until the soil is reasonably dry will help to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland

Suitability: Suited

Management concerns:

- The occasional flooding and damage to sod during wet periods are management concerns.

Management considerations:

- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland

Potential productivity: Site index of 85 for northern red oak

Management concerns:

- The seasonal wetness is a management concern.

Management considerations:

- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- The trees that can withstand the seasonal wetness and the occasional flooding should be selected for planting.

Community Development

Suitability: Unsuited

Management concerns:

- The occasional flooding, the seasonal wetness, and low strength are limitations affecting urban development.

Management considerations:

- Soils in adjacent areas out of the flood plain are better suited to building site development, roads, and other community development.

Interpretive Groups

Land capability classification: 2w

Prime farmland: Yes

Hydric soil: No; however, map unit inclusions may be hydric soils

LtA—Lindside silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Flood plains along the Kanawha River

Composition

Lindside soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 11 inches—dark brown silt loam

Subsurface layer:
11 to 20 inches—dark yellowish brown silt loam

Subsoil:
20 to 42 inches—brown silt loam with grayish brown redox depletions

Substratum:
42 to 65+ inches—brown silty clay loam with light brownish gray redox depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral in the surface soil and subsoil and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Melvin soils
- Somewhat poorly drained soils
- The Lindside soils that are subject to occasional or frequent flooding; immediately adjacent to streams and rivers

Nonlimiting inclusions:
- Well drained Huntington, Ashton, and Elk soils in the higher landscape positions
- Moderately well drained Gallipolis and somewhat poorly drained Taggart soils; typically in the slightly higher landscape positions

Use and Management

Uses: This Lindside soil is used as cropland, hayland, or pasture. Only a few small areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table and the flooding in late winter and early spring are management concerns.

Management considerations:
- The flooding is rare and generally does not damage crops.
- A crop rotation that includes close-growing crops, a conservation tillage system, grassed waterways, cover crops, and crop residue management help to prevent excessive soil loss.
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The flooding and damage to sod during wet periods are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited
Management concerns:
- The flooding, the seasonal wetness, and low strength are limitations affecting urban development.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development, roads, and other community development.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

LvA—Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains, mainly in the northern part of Mason County but also in the very southern part of the survey area

Composition

Lobdell soil: 85 percent
Inclusions: 15 percent

Typical Profile

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

Subsoil:
5 to 16 inches—dark yellowish brown silt loam
16 to 25 inches—dark yellowish brown loam with light brownish gray iron depletions
25 to 35 inches—yellowish brown loam with light brownish gray iron depletions

Substratum:
35 to 65 inches—brown stratified loam, silt loam, and sandy loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral in the surface layer and subsoil and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Alluvium

Minor Components

Limiting inclusions:
- Poorly drained Melvin soils in depressions and old oxbows
- Vandalia soils on footslopes

Nonlimiting inclusions:
- Well drained Chagrin and Sensabaugh soils in similar landscape positions
- Well drained Kanawha soils on high flood plains and low terraces
- Rarely flooded Sensabaugh soils on alluvial fans and high flood plains

Use and Management

Uses: Most areas of this Lobdell soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table and the flooding are management concerns.

Management considerations:
- The flooding occasionally delays field operations or damages crops.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.
- Measures that maintain existing drainage systems help to overcome the wetness.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The occasional flooding is a management concern.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 87 for northern red oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- The trees that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, can reduce the seedling mortality rate.

Community Development
Suitability: Unsuited to building site development; limited as a site for roads and streets
Management concerns:
- The occasional flooding is a management concern.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

LzC—Lowell-Culleoka complex, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, dissected upland ridgetops
Note: The Lowell and Culleoka soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Lowell soil: 50 percent
Culleoka soil: 35 percent
Inclusions: 15 percent

Typical Profile

Lowell
Surface layer:
0 to 10 inches—brown silty clay loam

Subsoil:
10 to 13 inches—strong brown silty clay loam
13 to 22 inches—strong brown silty clay
22 to 46 inches—reddish yellow clay
46 to 57 inches—brown stony clay

Substratum:
57 to 59 inches—reddish yellow very stony silty clay loam

Bedrock:
59 inches—limestone bedrock

Culleoka
Surface layer:
0 to 10 inches—dark brown channery silt loam

Subsoil:
10 to 21 inches—strong brown channery silt loam
21 to 26 inches—strong brown very channery silt loam

Substratum:
26 to 31 inches—brown very channery silt loam

Bedrock:
31 inches—highly fractured shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Lowell—moderately slow; Culleoka—moderate

Available water capacity: Lowell—moderate or high; Culleoka—moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Lowell—moderate; Culleoka—low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Lowell—moderate or high; Culleoka—moderate
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and upper part of the subsoil and slightly acid to slightly alkaline in the lower part of the subsoil and in the substratum of the Lowell soil and moderately acid to strongly acid in the surface layer and subsoil and slightly acid to strongly acid in the substratum of the Culleoka soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: Lowell—40 to 60 inches; Culleoka—20 to 40 inches
Parent material: Lowell—residuum derived from limestone and limy shale; Culleoka—residuum derived from siltstone and limy shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Severely eroded soils
- Soils that are less than 20 inches deep

Nonlimiting inclusions:
- Upshur and Peabody soils near slope breaks
- Soils that have a channery surface layer
- The Lowell soils that have a higher content of organic matter in the surface layer than is typical for the series

Use and Management

Uses: Most areas of this map unit have been cleared and are used for hay and pasture. Some areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion, the prevention of overgrazing, and the establishment and maintenance of a mixture of grasses and legumes are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland

Potential productivity: Lowell—site index of 75 for northern red oak; Culleoka—site index of 80 for northern red oak

Management concerns:

- The hazard of erosion on logging roads and skid trails is a management concern.

Management considerations:

- Logging roads should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- Site preparation following harvest and immediate establishment of the new forest for tree crop production reduce plant competition.
- Carefully managed reforestation helps to control undesirable understory plants.

Community Development

Suitability: Limited

Management concerns:

- The slope, the clayey subsoil, and low strength are limitations affecting urban development in areas of the Lowell soil.
- The slope and the depth to bedrock are management concerns in areas of the Culleoka soil.

Management considerations:

- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- For septic tank absorption fields, increasing the size of the absorption area and backfilling with gravel help to compensate for the restricted permeability in areas of the Lowell soil.
- Selecting areas of the deepest soils, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Culleoka soil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.
- Topsoil should be stockpiled for use in revegetation.
- Revegetating after construction with stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

M-W—Miscellaneous water

Setting

This map unit consists of areas impounded with water year round. It generally includes industrial settling ponds, water-treatment areas, and the fish hatchery at the Robert C. Byrd Locks in Mason County. Mapped areas range from about 3 to 50 acres in size. Smaller areas of miscellaneous water are represented by a spot symbol.

Minor Components

Included in this map unit are areas of Udorthents, which consist of soils disturbed during the construction of the impoundments.

Interpretive Groups

No interpretations are given for this map unit.

McA—McGary-Shircliff complex, 0 to 3 percent slopes

Setting

Landscape position: Nearly level terraces and terrace remnants along tributaries of the Ohio River
Note: The McGary and Shircliff soils occur as areas so intermingled that it was not practical to map them separately.

Composition

McGary soil: 45 percent
Shircliff soil: 35 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
7 to 12 inches—light olive brown silty clay loam with many light brownish gray iron depletions
12 to 16 inches—yellowish brown silty clay with many light brownish gray iron depletions
16 to 43 inches—grayish brown silty clay
43 to 56 inches—yellowish brown silty clay loam with light brownish gray iron depletions

Substratum:
56 to 85 inches—yellowish brown silty clay loam and silt loam with grayish brown and gray iron depletions

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

Subsoil:
8 to 19 inches—yellowish brown silty clay loam and silty clay
19 to 42 inches—yellowish brown silty clay and silty clay loam with light brownish gray iron depletions
42 to 58 inches—light olive brown silt loam and silty clay loam
58 to 65 inches—mixed light olive brown and grayish brown silt loam

Soil Properties and Qualities

Drainage class: McGary—somewhat poorly drained; Shircliff—moderately well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: McGary—0.5 foot to 1.5 feet; Shircliff—1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high

Reaction: In unlimed areas, strongly acid to neutral in the surface soil and upper part of the subsoil and slightly alkaline or moderately alkaline in the lower part of the subsoil and in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Old slackwater alluvium

Minor Components

Limiting inclusions:
- Poorly drained soils

Nonlimiting inclusions:
- Soils with iron depletions not directly below the surface layer but less than 10 inches below the top of the subsoil
- Soils with a fine-silty control section

Use and Management

Uses: The McGary and Shircliff soils are used as cropland or hayland. A few small areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness may delay tillage and planting in the spring.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Some areas of this map unit have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The seasonal high water table and damage to sod during wet periods are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- The hay and pasture plants that can withstand the seasonal wetness should be selected for planting.

Woodland
Potential productivity: McGary—site index of 74 for northern red oak; Shircliff—site index of 78 for northern red oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- Only a limited acreage of this map unit is used as woodland.
- Equipment use should be restricted during wet periods because the soil is soft when wet.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited

Management concerns:
- The seasonal high water table, the high clay content in the subsoil, and the shrink-swell potential are management concerns.

Management considerations:
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.
- An alternative septic tank system that compensates for the seasonal high water table and the slow or restricted permeability should be considered.

Interpretive Groups

Land capability classification: McGary—3w; Shircliff—2w
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

MdA—Melvin silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains along the Ohio River and near the mouth of the Kanawha River and its tributaries; throughout the survey area

Composition

Melvin soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam with dark grayish brown iron depletions and strong brown iron concentrations

Subsoil:
9 to 27 inches—dark grayish brown silt loam with strong brown iron concentrations

Substratum:
27 to 65 inches—gray and grayish brown silty clay loam with strong brown iron concentrations

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Within a depth of 1 foot in undrained areas
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- The poorly drained Melvin soils that have a clayey substratum
- Soils that are ponded for long periods of time

Nonlimiting inclusions:
- Well drained Ashton, Elk, and Huntington soils
- Moderately well drained Lindside and Gallipolis soils
- Somewhat poorly drained soils

Use and Management

Uses: Most areas of this Melvin soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded or in swamps.

Cropland
Suitability: Suited in drained areas
Management concerns:
- The seasonal wetness, the ponding, and the occasional flooding are management concerns.

Management considerations:
- The seasonal wetness, the ponding, and the flooding can delay planting and harvesting and affect crop yield.
- Measures that maintain existing drainage systems are needed.
- Applying a system of conservation tillage, including hay in crop rotations, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited in drained areas
Management concerns:
- The ponding and the occasional flooding are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm are major pasture management needs.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 95 for pin oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- The seasonal high water table restricts equipment use to midsummer when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- The trees that can withstand periodic inundation and seasonal wetness should be selected for planting.

Community Development
Suitability: Unsuited
Management concerns:
- The flooding, the ponding, the wetness, and low soil strength are limitations affecting urban development.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development and roads.

- Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: Yes

MeA—Melvin silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: Flood plains along the Kanawha River

Composition

Melvin soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam with dark grayish brown iron depletions and strong brown iron concentrations

Subsoil:
9 to 27 inches—dark grayish brown silt loam with strong brown iron concentrations

Substratum:
27 to 65 inches—gray and grayish brown silty clay loam with strong brown iron concentrations

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Within a depth of 1 foot in undrained areas
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: None
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, moderately acid to neutral throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Melvin soils that have a clayey substratum
- Soils that are subject to more frequent flooding than this Melvin soil or are ponded for long periods of time

Nonlimiting inclusions:
- Well drained Ashton, Elk, and Huntington soils
- Moderately well drained Lindside and Gallipolis soils
- Somewhat poorly drained Taggart soils

Use and Management

Uses: Most areas of this Melvin soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded or in swamps.

Cropland
Suitability: Suited in drained areas
Management concerns:
- The seasonal wetness, the ponding, and the flooding are management concerns.

Management considerations:
- The seasonal wetness, the ponding, and the flooding can delay planting and harvesting and affect crop yield.
- Measures that maintain existing drainage systems are needed.
- Applying a system of conservation tillage, including hay in crop rotations, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited in drained areas
Management concerns:
- The ponding and the flooding are management concerns.

Management considerations:
- Measures that maintain existing drainage systems are needed.
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm are major pasture management needs.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 95 for pin oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- The seasonal high water table restricts equipment use to midsummer when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- The trees that can withstand periodic inundation and seasonal wetness should be selected for planting.

Community Development
Suitability: Unsuited
Management concerns:
- The flooding, the ponding, the wetness, and low soil strength are limitations affecting urban development.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development and roads.
- Current regulations should be checked before a drainage system is installed or fill material is added.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: Yes

MgB—Monongahela silt loam, 3 to 8 percent slopes

Setting

Landscape position: Sloping, loamy terraces; near Hannan in Mason County and in the eastern part of Jackson County

Composition

Monongahela soil: 80 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
9 to 25 inches—brownish yellow silt loam
25 to 60 inches—a fragipan of yellowish brown and brownish yellow silt loam with light gray iron depletions

Substratum:
60 to 72 inches—mixed yellow, very pale brown, and light gray silt loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the solum and slow in the lower part of the solum due to the fragipan
Available water capacity: Moderate
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, strongly acid or very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Old fine-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with iron depletions less than 10 inches below the top of the argillic horizon
- Soils with slopes of more than 8 percent
- Soils that are underlain by residuum or soft sandstone bedrock within a depth of 65 inches; generally near the edge of the map unit

Nonlimiting inclusions:
- Soils with slopes of less than 3 percent

- Well drained Allegheny soils near slope breaks
- Moderately well drained soils that do not have a fragipan

Use and Management

Uses: Most areas of this Monongahela soil are used as cropland, hayland, or pasture. A limited acreage is used as woodland.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness, the fragipan in the subsoil, and the moderate hazard of erosion are management concerns.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Crop rotations that include grasses and legumes and small grain will help to control runoff and water erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods, the moderate hazard of erosion, and the seasonal wetness are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 70 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods when the soil is soft and slippery.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness, the restricted permeability in the subsoil, and low strength are limitations affecting urban development.

Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- An alternative septic tank system that compensates for the slow or restricted permeability should be considered.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

MoA—Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains; mainly in the eastern part of Mason County and throughout Jackson County

Composition

Moshannon soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 9 inches—reddish brown silt loam

Subsoil:
9 to 53 inches—reddish brown and yellowish red silt loam

Substratum:
53 to 66 inches—reddish brown silt loam
66 to 79 inches—reddish brown fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 4 to 6 feet
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral in the surface layer, moderately acid or slightly acid in the subsoil, and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Senecaville soils on flood plains
- Poorly drained Melvin soils in depressions and old oxbows
- Vandalia soils on footslopes

Nonlimiting inclusions:
- Well drained Sensabaugh and Chagrin soils
- Well drained Hackers soils that are subject to rare flooding and are on high flood plains and low terraces
- Sensabaugh soils that are subject to rare flooding and are on alluvial fans and high flood plains

- The Moshannon soils that are downstream from flood-control structures and are subject to rare flooding

Use and Management

Uses: Most areas of this Moshannon soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The flooding occasionally delays field operations or damages crops.

Management considerations:
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods, streambank erosion, and the flooding are management concerns.

Management considerations:
- The flooding may occasionally deposit debris on the grassland.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Unsuited to building site development; limited as a site for roads and streets
Management concerns:
- The occasional flooding is a management concern.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

OmA—Omulga silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level, loamy terraces in the northern part of Mason County, known as the Upper Flats, and on high terraces along the Kanawha and Ohio Rivers

Composition

Omulga soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 21 inches—yellowish brown silt loam
21 to 45 inches—a fragipan of yellowish brown silt loam with grayish brown iron depletions
45 to 55 inches—strong brown silt loam with grayish brown iron depletions
55 to 64 inches—strong brown silty clay loam with light brownish gray iron depletions

Substratum:
64 to 72 inches—yellowish red fine sandy loam with thin strata in bedding planes
72 to 79 inches—yellowish brown silty clay loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the solum and slow in the lower part of the solum due to the fragipan
Available water capacity: Moderate
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, strongly acid to neutral in the surface layer, very strongly acid or strongly acid in the upper part of the subsoil (including the fragipan), and very strongly acid to moderately acid in the lower part of the subsoil and in the substratum

Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Old alluvium

Minor Components

Limiting inclusions:
- Somewhat poorly drained Taggart soils
- Poorly drained Ginat soils
- Soils with iron depletions less than 10 inches below the top of the argillic horizon
- Soils with slopes of more than 3 percent

Nonlimiting inclusions:
- Well drained Gallia soils near slope breaks
- Moderately well drained soils that do not have a fragipan
- Moderately well drained soils that have a fine-loamy particle-size class

Use and Management

Uses: This Omulga soil is used as cropland, hayland, or pasture. A limited acreage is used as woodland.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness and the fragipan in the subsoil are management concerns.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods when the soil is soft and slippery.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness, the restricted permeability in the subsoil, and low strength are limitations affecting urban development.

Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.

- An alternative septic tank system that compensates for the slow or restricted permeability should be considered.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

OmB—Omulga silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, loamy terraces; in the northern part of Mason County, known as the Upper Flats, and on high terraces along the Kanawha and Ohio Rivers

Composition

Omulga soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 21 inches—yellowish brown silt loam
21 to 45 inches—a fragipan of yellowish brown silt loam with grayish brown iron depletions
45 to 55 inches—strong brown silt loam with grayish brown iron depletions
55 to 64 inches—strong brown silty clay loam with light brownish gray iron depletions

Substratum:
64 to 72 inches—yellowish red fine sandy loam with thin strata in bedding planes
72 to 79 inches—yellowish brown silty clay loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the solum and slow in the lower part of the solum due to the fragipan
Available water capacity: Moderate
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, strongly acid to neutral in the surface layer, very strongly acid or strongly acid in the upper part of the subsoil (including the fragipan), and very strongly acid to moderately acid in the lower part of the subsoil and in the substratum

Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Old alluvium

Minor Components

Limiting inclusions:
- Somewhat poorly drained Taggart soils
- Soils with iron depletions less than 10 inches below the top of the argillic horizon
- Soils with slopes of more than 8 percent
- Soils that have bedrock or weathered bedrock, or both, within a depth of 65 inches; generally near the edge of the mapped area or on terraces that are highly dissected by narrow drainageways

Nonlimiting inclusions:
- Soils with slopes of less than 3 percent
- Well drained Gallia soils near slope breaks
- Moderately well drained soils that do not have a fragipan
- Moderately well drained soils with a fine-loamy particle-size class

Use and Management

Uses: Most areas of this Omulga soil are used as cropland, hayland, or pasture (fig. 9). A few areas are wooded.

Cropland
Suitability: Suited

Figure 9.—An area of Omulga and Gallia soils in the Upper Flats area of Mason County. These soils are considered to be farmland of statewide importance and are used intensively for beef and dairy operations.

Management concerns:
- The seasonal wetness, the fragipan in the subsoil, and the moderate hazard of erosion are management concerns.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Crop rotations that include grasses and legumes and small grain will help to control runoff and water erosion.

Pasture and Hayland

Suitability: Suited

Management concerns:
- Preventing damage to sod during wet periods, the moderate hazard of erosion, and the seasonal wetness are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland

Potential productivity: Site index of 80 for northern red oak

Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted during wet periods when the soil is soft and slippery.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development

Suitability: Suited

Management concerns:
- The seasonal wetness, the restricted permeability in the subsoil, and low strength are limitations affecting urban development.

Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- An alternative septic tank system that compensates for the slow or restricted permeability should be considered.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

PgF—Peabody-Gilpin complex, 35 to 65 percent slopes

Setting

Landscape position: Very steep, convex, dissected upland side slopes (fig. 10)
Note: The Peabody and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

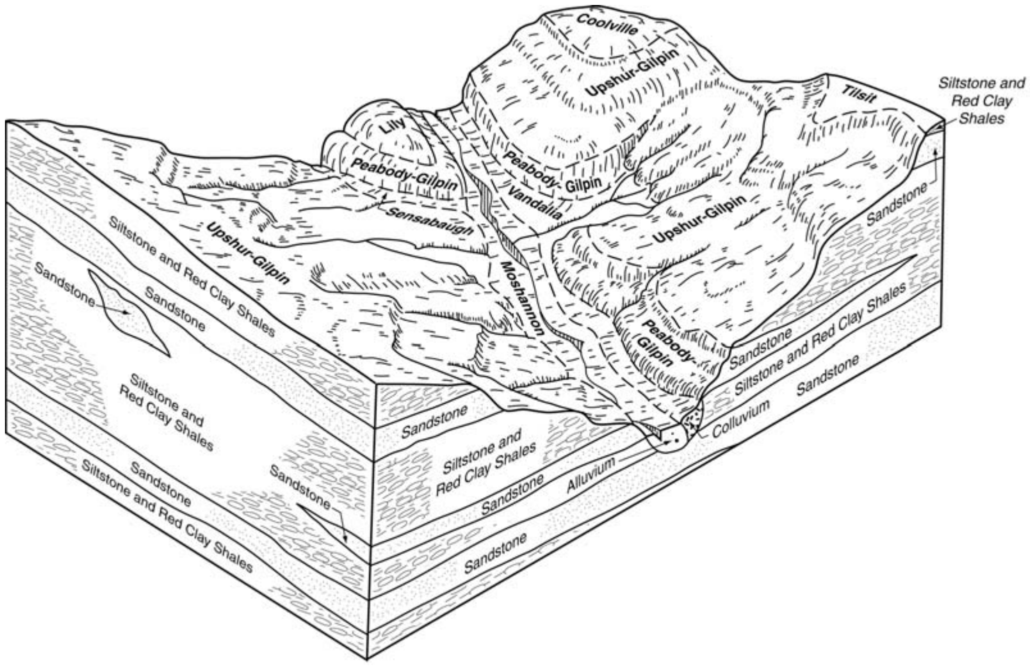

Figure 10.—A typical pattern of Peabody and Gilpin soils and their underlying parent material. This pattern of soils is dominant throughout Jackson County and the eastern part of Mason County.

Composition

Peabody soil: 45 percent
Gilpin soil: 35 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
4 to 9 inches—dark reddish brown silty clay
9 to 17 inches—dark reddish brown channery clay
17 to 23 inches—dark reddish brown channery silty clay

Bedrock:
23 inches—interbedded yellow siltstone and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Peabody—moderately slow or slow; Gilpin—moderate
Available water capacity: Peabody—moderate; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Peabody—high; Gilpin—low
Hazard of erosion: Very severe
Slope class: Very steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Peabody—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in areas of the Peabody soil and extremely acid to strongly acid in areas of the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Parent material: Peabody—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils that are less than 20 inches deep
- Very stony soils
- Areas of rock outcrop, mainly near the base of slopes
- Soils that are not so well drained and are near springs and seeps
- Severely eroded soils

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 35 percent
- Vandalia and similar soils that formed in colluvium and are on footslopes and benches
- Lily soils in thin bands on side slopes, often associated with areas of rock outcrop

Use and Management

Uses: Most areas of these Peabody and Gilpin soils are wooded. A few areas are used as pasture. Some pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- These soils should not be used for cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope and the very severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

- Converting pasture to woodland is the most effective way to control erosion in areas of this map unit if suitable pasture is available in less sloping areas.

Woodland

Potential productivity: Peabody—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak

Management concerns:

- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:

- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the less sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Because these soils are soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads should be graveled.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development

Suitability: Unsuited

Management concerns:

- The excessive slope, the very severe hazard of erosion, and the depth to bedrock are management concerns in areas of the Peabody and Gilpin soils.
- The high shrink-swell potential and the hazard of slippage are additional management concerns in areas of the Peabody soil.

Management considerations:

- Because of the slope, this map unit is unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Peabody soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Peabody soil may increase the potential for shrinking and swelling, which may increase the hazard of slippage.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

PgF3—Peabody-Gilpin complex, 35 to 65 percent slopes, severely eroded

Setting

Landscape position: Very steep, convex, dissected upland side slopes

Note: The Peabody and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Peabody soil: 45 percent
Gilpin soil: 35 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
4 to 9 inches—dark reddish brown silty clay
9 to 17 inches—dark reddish brown channery clay
17 to 23 inches—dark reddish brown channery silty clay

Bedrock:
23 inches—interbedded yellow siltstone and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Peabody—moderately slow or slow; Gilpin—moderate
Available water capacity: Peabody—moderate; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Peabody—high; Gilpin—low
Hazard of erosion: Very severe
Slope class: Very steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Peabody—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in areas of the Peabody soil and extremely acid to strongly acid in areas of the Gilpin soil
Organic matter content in the surface layer: Low
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Parent material: Peabody—residuum derived from yellowish brown, fine grained sandstone, siltstone, and red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils that are less than 20 inches deep

- Areas of rock outcrop, mainly near the base of slopes
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 35 percent
- Vandalia soils on footslopes
- Soils that are slightly or moderately eroded

Use and Management

Uses: Most areas of these Peabody and Gilpin soils are used as pasture. Some pastures are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, these soils are unsuited to cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The excessive slope and the very severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- If areas can be safely accessed, lime and fertilizer should be applied according to the results of soil tests.
- Animals should be kept off seeded areas until grasses have become well established.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Converting pasture to woodland is the most effective way to control erosion in areas of this map unit if suitable pasture is available in less sloping areas.

Woodland
Potential productivity: Peabody—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- A limited acreage of this map unit is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the less sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.

- Because these soils are soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads should be graveled.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development
Suitability: Unsuited
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the depth to bedrock are management concerns in areas of the Peabody and Gilpin soils.
- The high shrink-swell potential and the hazard of slippage are additional concerns in areas of the Peabody soil.

Management considerations:
- Because of the slope, these soils are unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Peabody soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Peabody soil may increase the potential for shrinking and swelling, which may increase the hazard of slippage.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

Qu—Quarries, sand and gravel

Setting

This map unit consists of open excavations from which sand and gravel have been removed or are being removed during quarrying operations and areas where gravel and soil material removed during quarrying operations have been or will be dumped. The map unit is at the high terrace level along the Ohio River. The quarries generally have vertical walls that range from 15 to 100 or more feet high. A few small quarries are inactive and are partially filled with water. Little or no vegetation grows in areas of this map unit.

Composition

Quarries, sand and gravel: 95 percent
Inclusions: 5 percent

Typical Profile

Because the properties of the soil material vary, a typical profile is not given.

Soil Properties and Qualities

The soil material in the dump areas generally is sandy or gravelly at the surface. The fine-earth fraction generally is loamy. The properties of the soil material vary greatly. An onsite investigation is needed to determine the soil properties and qualities of the soil material at a specific site.

Minor Components

Nonlimiting inclusions:
- Well drained Wheeling and Conotton soils

Use and Management

Uses: Most areas of this map unit are used as active quarries.

Other Uses
Suitability: Very limited
Management considerations:
- An onsite investigation is necessary to determine the suitability of this map unit for other uses.

Interpretive Groups

Land capability classification: Not assigned
Hydric soil: No

SeA—Senecaville silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains, dominantly in Jackson County

Composition

Senecaville soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
8 to 17 inches—reddish brown silt loam
17 to 32 inches—reddish brown silt loam with pinkish gray iron depletions

Substratum:
32 to 60 inches—reddish brown silt loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: Occasional
Shrink-swell potential: Moderate
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to slightly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 6 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Melvin soils in depressions and old oxbows

- Somewhat poorly drained soils
- Vandalia soils on footslopes

Nonlimiting inclusions:
- Moderately well drained soils that have gray iron depletions between the depths of 24 and 40 inches
- Well drained Moshannon and Sensabaugh soils in similar landscape positions
- The Senecaville soils that are rarely flooded and are on high flood plains and low terraces
- The Sensabaugh soils that are rarely flooded and are on alluvial fans and high flood plains
- The Senecaville soils that are downstream from flood-control structures and are subject to rare flooding

Use and Management

Uses: Most areas have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table and the flooding are management concerns.

Management considerations:
- The flooding occasionally delays field operations or damages crops.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.
- Maintaining the existing drainage system helps to overcome the seasonal high water table.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods and the seasonal wetness are management concerns.
- The flooding may occasionally deposit debris on the grassland.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- The seasonal high water table is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Equipment use should be restricted to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.

- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- The trees that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, can reduce the seedling mortality rate.

Community Development
Suitability: Unsuited to building site development; limited for roads and streets
Management concerns:
- The occasional flooding is a management concern.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

SfA—Senecaville silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: High flood plains and low terraces along major streams; dominantly in Jackson County

Composition

Senecaville soil: 70 percent
Inclusions: 30 percent

Typical Profile

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

Subsoil:
8 to 17 inches—reddish brown silt loam
17 to 32 inches—reddish brown silt loam with pinkish gray iron depletions

Substratum:
32 to 60 inches—reddish brown silt loam with light brownish gray iron depletions

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: Rare
Shrink-swell potential: Moderate
Hazard of erosion: None or slight

Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, strongly acid to slightly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 6 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Vandalia soils on footslopes
- Poorly drained Melvin soils in depressions

Nonlimiting inclusions:
- Moderately well drained soils that have gray iron depletions between the depths of 24 and 40 inches
- Soils with more profile development than is typical of the Senecaville series
- Well drained Hackers soils in similar landscape positions
- The Sensabaugh soils that are subject to rare flooding and are on alluvial fans and high flood plains

Use and Management

Uses: Most areas of this Senecaville soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table and the flooding are management concerns.

Management considerations:
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.
- Maintaining the existing drainage system helps to overcome the seasonal high water table.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods and the seasonal wetness are management concerns.

Management considerations:
- The flooding may occasionally deposit debris on the grassland.
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland

Potential productivity: Site index of 85 for northern red oak

Management concerns:

- The seasonal high water table is a management concern.

Management considerations:

- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- The trees that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, can reduce the seedling mortality rate.

Community Development

Suitability: Limited suitability for building site development and for roads and streets

Management concerns:

- The flooding is a management concern.

Management considerations:

- Adjacent areas that are out of the flood plain may be better suited to building site development.
- Although this soil is subject to rare flooding, it is used as a building site along most creeks in the survey area.
- Constructing buildings on well compacted fill material helps to prevent the structural damage caused by flooding.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w

Prime farmland: Yes

Hydric soil: No; however, map unit inclusions may be hydric soils

SnA—Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Narrow flood plains; throughout the survey area (fig. 11)

Composition

Sensabaugh soil: 85 percent

Inclusions: 15 percent

Typical Profile

Surface layer:

0 to 7 inches—dark brown loam

Subsoil:

7 to 32 inches—brown gravelly clay loam

Substratum:

32 to 45 inches—brown very gravelly sandy loam

Figure 11.—An area of Sensabaugh loam used for tobacco production. This field includes areas of both the occasionally flooded and rarely flooded Sensabaugh soils mapped in the two counties.

45 to 50 inches—strong brown gravelly sandy clay loam with brown and strong brown iron concentrations
50 to 65 inches—brown stratified gravelly sandy clay loam and sandy loam with dark reddish brown iron concentrations

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 5 feet
Parent material: Loamy alluvium

Minor Components

Limiting inclusions:
- Moderately well drained Lobdell soils on flood plains
- Poorly drained soils in depressions

- Vandalia soils on footslopes

Nonlimiting inclusions:
- The Sensabaugh soils that are rarely flooded and are on alluvial fans and high flood plains
- Well drained Chagrin and Moshannon soils
- Soils that have gravel throughout the profile but not enough to classify as Sensabaugh soils

Use and Management

Uses: Most areas have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The flooding occasionally delays field operations or damages crops.

Management considerations:
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The occasional flooding and streambank erosion are management concerns.

Management considerations:
- The flooding occasionally deposits debris on the grassland.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Unsuited to building site development; limited as a site for roads and streets

Management concerns:
- The occasional flooding is a management concern.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

SrB—Sensabaugh loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: Second bottoms and alluvial fans; throughout the survey area

Composition

Sensabaugh soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 7 inches—dark brown loam

Subsoil:
7 to 32 inches—brown gravelly clay loam

Substratum:
32 to 45 inches—brown very gravelly sandy loam
45 to 50 inches—strong brown gravelly sandy clay loam with brown and strong brown iron concentrations
50 to 65 inches—brown stratified gravelly sandy clay loam and sandy loam with dark reddish brown iron concentrations

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet

Parent material: Loamy alluvium

Minor Components

Limiting inclusions:
- Moderately well drained soils on second bottoms and alluvial fans
- Sensabaugh, Moshannon, and Chagrin soils that are subject to occasional flooding and are on first bottoms
- Vandalia soils on footslopes

Nonlimiting inclusions:
- Hackers soils that are rarely flooded and are on second bottoms
- Soils with less than 15 percent coarse fragments throughout the profile
- Soils that have an argillic horizon

Use and Management

Uses: Most areas of this Sensabaugh soil have been cleared and are used as cropland, hayland, or pasture. Only a few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The flooding is a management concern.

Management considerations:
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Growing cover crops or green manure crops helps to protect the soil that generally would be left bare and to utilize nutrients that would otherwise be lost from the root zone of most plants.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- The flooding is a management concern.

Management considerations:
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 85 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Suited for building site development and for roads and streets

Management concerns:
- The flooding is a management concern.

Management considerations:
- Although this soil is subject to rare flooding, it is used as a building site along most creeks in the survey area.
- Adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.
- The higher areas away from drainageways are best suited to building site development and roads.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

StC—Shircliff silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping terrace remnants along Ohio River tributaries

Composition

Shircliff soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 19 inches—yellowish brown silty clay loam and silty clay
19 to 42 inches—yellowish brown silty clay and silty clay loam with light brownish gray iron depletions
42 to 58 inches—light olive brown silt loam and silty clay loam
58 to 65 inches—mixed light olive brown and grayish brown silt loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, strongly acid to neutral in the surface soil and in the upper part of the subsoil and slightly alkaline or moderately alkaline in the lower part of the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 5 feet
Parent material: Old slackwater alluvium

Minor Components

Limiting inclusions:
- Somewhat poorly drained McGary soils
- Soils with gray iron depletions less than 10 inches below the top of the subsoil
- Soils with slopes of more than 15 percent
- Small areas of severely eroded soils

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent
- Soils with a fine-silty control section

Use and Management

Uses: This Shircliff soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Suited to poorly suited
Management concerns:
- The severe hazard of erosion and the seasonal high water table are management concerns.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The seasonal high water table and the severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 78 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings may need to be graveled.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Poorly suited
Management concerns:
- The high clay content in the subsoil, the hazard of erosion, and the seasonal high water table are management concerns.

Management considerations:
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.

- An alternative septic tank system that compensates for the seasonal high water table and the slow or restricted permeability should be considered.
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

SxB—Shircliff-McGary complex, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping terraces and terrace remnants; along tributaries of the Ohio River
Note: The Shircliff and McGary soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Shircliff soil: 45 percent
McGary soil: 35 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
8 to 19 inches—yellowish brown silty clay loam and silty clay
19 to 42 inches—yellowish brown silty clay and silty clay loam with light brownish gray iron depletions
42 to 58 inches—light olive brown silt loam and silty clay loam
58 to 65 inches—mixed light olive brown and grayish brown silt loam

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

Subsoil:
7 to 12 inches—light olive brown silty clay loam with many light brownish gray iron depletions
12 to 16 inches—yellowish brown silty clay with many light brownish gray iron depletions
16 to 43 inches—grayish brown silty clay
43 to 56 inches—yellowish brown silty clay loam with light brownish gray iron depletions

Substratum:
56 to 85 inches—yellowish brown silty clay loam and silt loam with grayish brown and gray iron depletions

Soil Properties and Qualities

Drainage class: Shircliff—moderately well drained; McGary—somewhat poorly drained
Permeability: Slow

Available water capacity: Moderate or high
Depth to a seasonal high water table: Shircliff—1.5 to 3.0 feet; McGary—0.5 foot to 1.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, strongly acid to neutral in the surface soil and in the upper part of the subsoil and slightly alkaline or moderately alkaline in the lower part of the subsoil and in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Old slackwater alluvium

Minor Components

Limiting inclusions:
- Small areas of eroded soils
- Poorly drained soils

Nonlimiting inclusions:
- Soils with iron depletions not directly below the surface layer but less than 10 inches below the top of the subsoil
- Soils that have a fine-silty control section

Use and Management

Uses: These Shircliff and McGary soils are used as cropland, hayland, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table, the moderate hazard of erosion, and the high clay content in the subsoil are management concerns.

Management considerations:
- A conservation tillage system, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The seasonal high water table and damage to sod during wet periods are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.
- The hay and pasture plants that can withstand the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Shircliff—site index of 78 for northern red oak; McGary—site index of 74 for northern red oak

Management concerns:
- The wetness is a management concern.

Management considerations:
- Only a limited acreage of this map unit is used as woodland.
- Because these soils are soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings may need to be graveled.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- Trees along streams and rivers should not be harvested because they help to stabilize the streambank.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development

Suitability: Poorly suited

Management concerns:
- The seasonal high water table, the high clay content in the subsoil, and the shrink-swell potential are management concerns.

Management considerations:
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.
- An alternative septic tank system that compensates for the seasonal high water table and the slow or restricted permeability should be considered.

Interpretive Groups

Land capability classification: Shircliff—2e; McGary—3w
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

TaA—Taggart silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nonflooding terraces along major tributaries of the Kanawha and Ohio Rivers

Composition

Taggart soil: 70 percent
Inclusions: 30 percent

Typical Profile

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

Subsoil:
8 to 72 inches—yellowish brown silt loam and silty clay loam with light brownish gray iron depletions and reddish yellow iron accumulations

Substratum:
72 to 80 inches—yellowish brown silty clay loam with light brownish gray iron depletions and reddish yellow iron accumulations

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1 to 3 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, strongly acid or very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Old alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat soils in depressions
- Soils with slopes of more than 3 percent
- Soils that are subject to rare flooding

Nonlimiting inclusions:
- Moderately well drained Zoar soils in the slightly higher landscape positions
- Soils that have lower base saturation values than are typical of the Taggart series

Use and Management

Uses: This Taggart soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness may delay tillage and planting in the spring.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods is a management concern.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- The hay and pasture plants that can withstand the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 75 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Limited
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- The soils in adjacent areas with fewer limitations should be considered when sites are selected for community development.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the seasonal high water table.
- Mounding or adding suitable fill material helps to raise septic tank absorption fields above the seasonal high water table.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

TfA—Taggart silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape position: High flood plains along the Kanawha and Ohio Rivers

Composition

Taggart soil: 70 percent
Inclusions: 30 percent

Typical Profile

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

Subsoil:
8 to 72 inches—yellowish brown silt loam and silty clay loam with light brownish gray iron depletions and reddish yellow iron accumulations

Substratum:
72 to 80 inches—yellowish brown silty clay loam with light brownish gray iron depletions and reddish yellow iron accumulations

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Depth to a seasonal high water table: 1 to 3 feet
Flooding: Rare
Shrink-swell potential: Moderate

Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and moderately acid to very strongly acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-silty alluvium

Minor Components

Limiting inclusions:
- Poorly drained Ginat and Melvin soils in depressions and sloughs
- Soils with slopes of more than 3 percent
- Soils that are subject to occasional flooding
- Soils with less profile development than is typical for the Taggart series

Nonlimiting inclusions:
- Well drained Elk and Ashton soils in the higher landscape positions
- Moderately well drained Gallipolis soils in the slightly higher landscape positions

Use and Management

Uses: This Taggart soil is used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- The flooding in late winter and early spring is a management concern.

Management considerations:
- The seasonal wetness may delay tillage and planting in the spring.
- The flooding rarely occurs and generally does not damage crops.
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- Some areas of this soil have been drained.
- Measures that maintain existing drainage systems are needed.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The flooding and damage to sod during wet periods are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.
- The hay and pasture plants that can withstand periodic inundation and the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Site index of 75 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.

- The trees that can withstand the seasonal wetness should be selected for planting.

Community Development
Suitability: Poorly suited
Management concerns:
- The flooding and the seasonal wetness are management concerns.

Management considerations:
- Soils in adjacent areas out of the flood plain are better suited to building site development, roads, and other community development.

Interpretive Groups

Land capability classification: 3w
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

ThC—Tarhollow silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, loess-capped ridgetops

Composition

Tarhollow soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown and brown silt loam

Subsoil:
5 to 12 inches—yellowish brown and brown silt loam
12 to 31 inches—strong brown and yellowish brown silty clay loam
31 to 55 inches—strong brown and yellowish brown channery silty clay loam and silty clay with grayish brown iron depletions

Bedrock:
55 to 60 inches—soft siltstone

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow or slow in the lower part of the subsoil
Available water capacity: Moderate or high
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: None
Shrink-swell potential: Moderate or high
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and in the upper part of the subsoil and strongly acid to neutral in the lower part of the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium

Depth to bedrock: 40 to 60 inches or more
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Moderately well drained Coolville and Tilsit soils
- Moderately deep Gilpin soils
- Well drained Upshur soils

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Tarhollow soil is used as pasture, hayland, or woodland.

Cropland
Suitability: Suited; however, generally used as hayland and pasture
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in overgrazed areas.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 68 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings may need to be graveled.
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited

Management concerns:
- The severe hazard of erosion, the slope, and low strength are management concerns.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Seeding and mulching building sites and roadbanks after construction helps to prevent erosion.
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

ThD—Tarhollow silt loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, loess-capped ridgetops

Composition

Tarhollow soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown and brown silt loam

Subsoil:
5 to 12 inches—yellowish brown and brown silt loam
12 to 31 inches—strong brown and yellowish brown silty clay loam
31 to 55 inches—strong brown and yellowish brown channery silty clay loam and silty clay, with grayish brown iron depletions

Bedrock:
55 to 60 inches—soft siltstone

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow or slow in the lower part of the subsoil
Available water capacity: Moderate or high
Depth to a seasonal high water table: 2.0 to 3.5 feet
Flooding: None
Shrink-swell potential: Moderate or high
Hazard of erosion: Very severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky

Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and upper part of the subsoil and strongly acid to neutral in the lower part of the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: 40 to 60 inches or more
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Well drained Upshur soils
- Moderately deep Peabody soils
- Severely eroded soils

Nonlimiting inclusions:
- Moderately well drained Coolville soils on less sloping ridgetop areas
- Moderately deep Gilpin soils

Use and Management

Uses: Most areas are used for pasture and woodland.

Cropland
Suitability: Limited
Management concerns:
- Erosion is a very severe hazard in unprotected areas.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a very severe hazard in overgrazed areas.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 68 for northern red oak
Management concerns:
- The very severe hazard of erosion and the slope are management concerns.

Management considerations:
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.

- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and landings after the trees are logged help to prevent excessive erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope, the very severe hazard of erosion, and low strength are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development without extensive land shaping.
- The surface layer, which has a coarse-silty texture, is extremely susceptible to erosion if it is left exposed.
- Seeding and mulching building sites and roadbanks after construction helps to prevent erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

Ud—Udorthents, smoothed-Urban land complex

Setting

This map unit consists of nearly level to very steep areas that have been drastically disturbed by excavating, grading, or filling or by a combination of these measures and of areas covered by asphalt, concrete, buildings, and other impervious materials. Most of the areas are the result of construction of locks along the Ohio River, road construction at or near the junction of Routes 2 and 35 in Mason County, construction of the I-77 corridor in Jackson County, and construction of commercial or industrial buildings and school grounds. The Udorthents and Urban land occur as areas so intermingled that it was not practical to map them separately.

Composition

Udorthents: 50 percent
Urban land: 30 percent
Inclusions: 20 percent

Typical Profile

Because these soils vary so widely in their characteristics, a typical profile is not given. In areas near or adjacent to the Ohio and Kanawha Rivers, these soils are generally fine-loamy or fine-silty in nature. In areas along the I-77 corridor, they are dominantly fine-loamy to clayey in nature and may contain varying amounts of rock fragments.

Soil Properties and Qualities

Drainage class: Varies
Permeability: Varies; often slow or very slow because the soil materials have been compacted by heavy equipment
Available water capacity: Varies
Depth to a seasonal high water table: More than 6 feet
Flooding: Generally none to rare
Shrink-swell potential: Varies
Hazard of erosion: Varies
Slope class: Nearly level to very steep
Stoniness: Varies
Rockiness: Varies
Natural fertility: Varies
Reaction: In unlimed areas, varies
Organic matter content in the surface layer: Generally low
Surface runoff: Varies
Depth to bedrock: Varies from shallow, in excavated areas, to very deep, in filled areas
Parent material: Varies

Minor Components

Nonlimiting inclusions:
• Generally, the Ashton, Wheeling, Chavies, Lakin, and Gallipolis soils in the river valleys and the Upshur, Gilpin, Vandalia, and Peabody soils on the uplands

Use and Management

Uses: Most areas of this map unit are used for highway rights-of-way, for commercial or industrial use, as school grounds, or for recreational activities.

Cropland
Suitability: Not suited
Management concerns:
• Because the Udorthents are intermingled with the areas of Urban land and the soil material is not natural, this map unit is not suited to cultivated crops.

Pasture and Hayland
Suitability: Generally not suited
Management concerns:
• The Udorthents are often compacted and low in organic matter.
Management considerations:
• Because the Udorthents are intermingled with the areas of Urban land and the extent of the map unit is limited, this map unit is not suited to pasture or hayland.

Woodland
Potential productivity: Varies, but generally low
Management concerns:
• Soil compaction and the low organic matter content are management concerns.
Management considerations:
• Only a very limited acreage of this map unit is currently used as woodland.

Community Development
Suitability: Varies
Management concerns:
• An onsite investigation is necessary to determine the suitability of the map unit as a site for buildings or sanitary facilities and for other uses.

Management considerations:
- Because the Udorthents are often compacted and have a low organic matter content, site preparation is needed in some areas.
- Compost or peat moss should be added to the soil material before reseeding grasses or planting trees.

Interpretive Groups

Land capability classification: Not assigned
Hydric soil: No

UeB—Upshur silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, convex upland ridgetops

Composition

Upshur soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: 40 to 60 inches
Parent material: Residuum derived from red clay shale

Minor Components

Limiting inclusions:
- Moderately well drained Coolville and Tilsit soils
- Soils with slopes of more than 8 percent

Nonlimiting inclusions:
- Soils capped with as much as 30 inches of alluvial material; in a nonflooded terrace position, commonly adjacent to large streams
- Moderately deep Gilpin soils

Use and Management

Uses: Most areas have been cleared and are used for hay and pasture. Some areas are wooded.

Cropland
Suitability: Suited, though most landowners choose to use the map unit as hayland and pasture
Management concerns:
- Erosion is a moderate hazard in unprotected areas.

Management considerations:
- A conservation tillage system, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a moderate hazard in overgrazed areas.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 65 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings may need to be graveled.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The shrink-swell potential, low strength, and the clayey subsoil are limitations affecting urban development.

Management considerations:
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a

different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

UeC—Upshur silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex upland ridgetops

Composition

Upshur soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium or high
Depth to bedrock: 40 to 60 inches
Parent material: Residuum derived from red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent

- Severely eroded soils
- Moderately well drained Coolville and Tilsit soils

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent
- Moderately deep Gilpin soils

Use and Management

Uses: Most areas of this Upshur soil have been cleared and are used for hay and pasture. Some areas are wooded.

Cropland
Suitability: Suited, though most landowners choose to use the map unit for hayland and pasture
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management will help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in overgrazed areas.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 65 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings may need to be graveled.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope, the high shrink-swell potential, low strength and the clayey subsoil are limitations affecting community development.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.

- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

UeD—Upshur silt loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex upland ridgetops

Composition

Upshur soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: 40 to 60 inches
Parent material: Residuum derived from red clay shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Severely eroded soils

Nonlimiting inclusions:
- Moderately well drained Coolville soils on the less sloping ridgetops
- Moderately deep Gilpin and Peabody soils

Use and Management

Uses: This Upshur soil is used as hayland and pasture. Some areas are wooded.

Cropland
Suitability: Poorly suited
Management concerns:
- Erosion is a very severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in overgrazed areas.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 70 for northern red oak
Management concerns:
- The erosion hazard and the slope are management concerns.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and landings after the trees are logged help to prevent excessive erosion.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope, the high shrink-swell potential, and the slow permeability are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development without extensive land shaping.
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 6e
Hydric soil: No

UgC—Upshur-Gilpin complex, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, dissected upland ridgetops
Note: The Upshur and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Upshur soil: 65 percent
Gilpin soil: 20 percent
Inclusions: 15 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Upshur—slow; Gilpin—moderate
Available water capacity: Upshur—moderate or high; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Upshur—high; Gilpin—low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Upshur—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil and extremely acid to strongly acid in the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium or high
Depth to bedrock: Upshur—40 to 60 inches; Gilpin—20 to 40 inches
Parent material: Upshur—residuum derived from red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Severely eroded soils
- Coolville and Tilsit soils with slopes of less than 8 percent
- Well drained Lily soils that generally have slopes of more than 15 percent; on the higher points along the ridgeline

Nonlimiting inclusions:
- Upshur and Gilpin soils with slopes of less than 8 percent
- Soils capped with as much as 30 inches of alluvial material; in a nonflooded terrace position, commonly adjacent to large streams
- Soils having a very silty surface layer and subsoil that are cumulatively less than 24 inches thick; on ridges adjacent to the Ohio River

Use and Management

Uses: Most areas of these Upshur and Gilpin soils have been cleared and are used for hay and pasture. Some areas are wooded.

Cropland
Suitability: Suited; however, generally used as hayland or pasture
Management concerns:
- Erosion is a severe hazard in unprotected areas.
- The clayey subsoil may delay spring tillage and cause limited root growth in cultivated crops.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in overgrazed areas.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Upshur—site index of 65 for northern red oak; Gilpin—site index of 80 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails is a management concern.

Management considerations:
- Because the Upshur soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings should be graveled.
- Landings should be built in areas of the Gilpin soil.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope, the clayey subsoil, low strength, the high shrink-swell potential, and a hazard of slippage are management concerns in areas of the Upshur soil.
- The slope and the depth to bedrock are management concerns in areas of the Gilpin soil.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling in areas of the Upshur soil.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Selecting areas of the deepest soils for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Topsoil should be stockpiled for use in revegetation.
- Vegetating the stockpiled topsoil helps to control erosion.

Interpretive Groups

Land capability classification: Upshur—4e; Gilpin—3e
Farmland of statewide importance: Yes
Hydric soil: No

UgD—Upshur-Gilpin complex, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, dissected upland ridgetops, upper side slopes, and narrow benches (fig. 12)
Note: The Upshur and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Upshur soil: 55 percent
Gilpin soil: 25 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Figure 12.—An area of Upshur-Gilpin complex, 15 to 25 percent slopes, on a typical Central Allegheny Plateau landscape. Christmas tree production is a viable alternative to the typical pasture and hayland uses.

Gilpin

Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Upshur—slow; Gilpin—moderate
Available water capacity: Upshur—moderate or high; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Upshur—high; Gilpin—low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Upshur—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil and extremely acid to strongly acid in the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: Upshur—40 to 60 inches; Gilpin—20 to 40 inches
Parent material: Upshur—residuum derived from red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Severely eroded soils
- Well drained Lily soils that generally have slopes of more than 25 percent; on the higher points along the ridgeline

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Well drained Vandalia soils on benches
- Soils having a very silty surface layer and subsoil that are cumulatively less than 24 inches thick; generally on ridges adjacent to the Ohio River

Use and Management

Uses: Most areas of these Upshur and Gilpin soils have been cleared and are used for hay and pasture. Some are wooded.

Cropland
Suitability: Limited
Management concerns:
- Erosion is a severe hazard in unprotected areas.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in overgrazed areas.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Upshur—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak
Management concerns:
- The hazard of erosion on logging roads and skid trails is a management concern.

Management considerations:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and landings after the trees are logged help to prevent excessive erosion.
- Because the Upshur soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads and landings should be graveled.
- Landings should be built in areas of the Gilpin soil.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation, especially on north aspects.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted.

Community Development
Suitability: Limited
Management concerns:
- The slope, the clayey subsoil, low strength, and the hazard of slippage are management concerns in areas of the Upshur soil.
- The slope and the depth to bedrock are management concerns in areas of the Gilpin soil.

Management considerations:
- Because of the slope, these soils are poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.

- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Building roads and streets on the contour helps to overcome the slope.

Interpretive Groups

Land capability classification: Upshur—6e; Gilpin—4e
Hydric soil: No

UgD3—Upshur-Gilpin complex, 15 to 25 percent slopes, severely eroded

Setting

Landscape position: Moderately steep, convex, dissected upland side slopes
Note: The Upshur and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.
Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Upshur soil: 55 percent
Gilpin soil: 25 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay
10 to 37 inches—dark reddish brown clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Upshur—slow; Gilpin—moderate
Available water capacity: Upshur—moderate or high; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Upshur—high; Gilpin—low
Hazard of erosion: Very severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Upshur—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil and extremely acid to strongly acid in the Gilpin soil
Organic matter content in the surface layer: Low
Surface runoff: High or very high
Depth to bedrock: Upshur—40 to 60 inches; Gilpin—20 to 40 inches
Parent material: Upshur—residuum derived from red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Areas where stones cover more than 1 percent of the soil surface
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 15 percent
- Vandalia soils on footslopes
- Soils that are slightly or moderately eroded
- Lily soils that generally have slopes ranging from 25 to 35 percent; on high knolls along ridgelines

Use and Management

Uses: Many areas of these Upshur and Gilpin soils are used as pasture. Some pastures are reverting to woodland.

Cropland
Suitability: Limited
Management concerns:
- The slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Lime and fertilizer should be applied according to the results of soil tests.
- Once vegetation is established, a conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Limited

Management concerns:

- The slope and the very severe hazard of erosion in previously eroded areas are management concerns.

Management considerations:

- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Lime and fertilizer should be applied according to the results of soil tests.
- Proper stocking rates, controlled grazing, and restricted use during wet or dry periods help to keep pastures in good condition.

Woodland

Potential productivity: Upshur—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak

Management concerns:

- The slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:

- Only a limited acreage of these soils is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- When planting trees, site preparation by mechanical or chemical means may be needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the less sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Because the Upshur soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads should be graveled.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development

Suitability: Limited

Management concerns:

- The slope, the very severe hazard of erosion, the high shrink-swell potential, and the hazard of slippage are management concerns in areas of the Upshur soil.
- The slope and the depth to bedrock are management concerns in areas of the Gilpin soil.

Management considerations:

- Because of the slope, this map unit is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.

- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability in areas of the Upshur soil; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock in areas of the Gilpin soil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Building roads and streets on the contour helps to overcome the slope.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling, which may increase the hazard of soil slippage.
- The soil in disturbed areas should be reseeded after construction is completed.
- Because only a minimal amount of topsoil is available, organic matter or topsoil may need to be added to the site to ensure growth of vegetation.
- Mulching the site helps to hold the seed in place for germination.
- Gullied areas may need to be regraded before vegetation can be established.

Interpretive Groups

Land capability classification: Upshur—7e; Gilpin—6e
Hydric soil: No

UgE—Upshur-Gilpin complex, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex, dissected upland side slopes
Note: The Upshur and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Upshur soil: 50 percent
Gilpin soil: 25 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay loam
10 to 37 inches—dark reddish brown silty clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Upshur—slow; Gilpin—moderate
Available water capacity: Upshur—moderate or high; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Upshur—high; Gilpin—low
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Upshur—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil and extremely acid to strongly acid in the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: Upshur—40 to 60 inches; Gilpin—20 to 40 inches
Parent material: Upshur—residuum derived from red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Severely eroded soils
- Areas of soil with more than 1 percent stone cover
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Vandalia and similar soils that formed in colluvium and are on footslopes and benches
- Soils that formed in residuum and have slopes of less than 25 percent
- Lily soils on high points along ridgelines or in thin bands on side slopes
- Peabody soils on side slopes

Use and Management

Uses: Many areas of these Upshur and Gilpin soils are wooded. Others are used as pasture. Some pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope, these soils are generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; poorly suited to pasture

Management concerns:
- The excessive slope and the very severe hazard of erosion in overgrazed areas are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes, in fields where access is available.
- Springs and seeps at the base of slopes may have potential for development into livestock watering sites.

Woodland

Potential productivity: Upshur—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak

Management concerns:
- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the less sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Because the Upshur soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads should be graveled.
- Landings should be located in the less sloping areas of the Gilpin soil.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed in areas where trees are planted, especially on north aspects in areas of the Upshur soil.

Community Development

Suitability: Unsuited

Management concerns:
- The excessive slope and the hazard of erosion are management concerns in areas of the Upshur and Gilpin soils.
- The high shrink-swell potential and hazard of slippage are additional management concerns in areas of the Upshur soil.
- The depth to bedrock is an additional management concern in areas of the Gilpin soil.

Management considerations:
- Because of the slope, these soils are generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.

- Seeding and mulching roadbanks after construction will help to control erosion.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling, which may increase the hazard of slippage.

Interpretive Groups

Land capability classification: Upshur—7e; Gilpin—6e
Hydric soil: No

UgE3—Upshur-Gilpin complex, 25 to 35 percent slopes, severely eroded

Setting

Landscape position: Steep, convex, dissected upland side slopes
Note: The surface layer of these soils is commonly thinner and its texture is commonly finer than noted in the following typical profiles because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.
Note: The Upshur and Gilpin soils occur as areas so intermingled that it was not practical to map them separately.

Composition

Upshur soil: 50 percent
Gilpin soil: 25 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
5 to 10 inches—reddish brown silty clay
10 to 37 inches—dark reddish brown clay
37 to 44 inches—dark reddish brown channery silty clay

Bedrock:
44 inches—interbedded yellow siltstone, red clay shale, and fine grained sandstone

Gilpin
Surface layer:
0 to 3 inches—very dark grayish brown silt loam

Subsurface layer:
3 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 13 inches—yellowish brown channery silt loam
13 to 24 inches—strong brown channery silt loam
24 to 30 inches—strong brown channery loam

Bedrock:
30 inches—yellowish brown, fine grained sandstone and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Upshur—slow; Gilpin—moderate
Available water capacity: Upshur—moderate or high; Gilpin—low or moderate
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Upshur—high; Gilpin—low
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Upshur—moderate or high; Gilpin—low or moderate
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately alkaline in the subsoil of the Upshur soil and extremely acid to strongly acid in the Gilpin soil
Organic matter content in the surface layer: Low
Surface runoff: Very high
Depth to bedrock: Upshur—40 to 60 inches; Gilpin—20 to 40 inches
Parent material: Upshur—residuum derived from red clay shale; Gilpin—residuum derived from yellowish brown, fine grained sandstone, siltstone, and shale

Minor Components

Limiting inclusions:
- Soils that formed in residuum and have slopes of more than 35 percent
- Soils that are less than 20 inches deep
- Soils that are not so well drained and are near springs and seeps

Nonlimiting inclusions:
- Soils that formed in residuum and have slopes of less than 25 percent
- Vandalia soils on footslopes
- Soils that are slightly or moderately eroded
- Lily soils on high knolls along ridgelines

Use and Management

Uses: Many areas of these Upshur and Gilpin soils are used as pasture. Some pastured areas are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The excessive slope and the very severe hazard of erosion are management concerns.

Management considerations:
- Because of the slope and the hazard of erosion, these soils are unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture

Management concerns:
- The excessive slope and the very severe hazard of erosion in previously eroded areas are management concerns.

Management considerations:
- Establishing a vegetative cover is the first step in returning these soils to their potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Lime and fertilizer should be applied according to the results of soil tests.
- After a vegetative cover is established, proper stocking rates, controlled grazing, and restricted use during wet or dry periods will help to keep pastures in good condition.

Woodland

Potential productivity: Upshur—site index of 70 for northern red oak; Gilpin—site index of 80 for northern red oak

Management concerns:
- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- Only a limited acreage of these soils is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- When planting trees, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.
- Because of the slope, special care is needed when logging roads and landings are laid out and logging equipment is operated.
- Logging roads should be built on the contour or on the less sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Because of the hazard of erosion, skid roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Because the Upshur soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Logging roads should be graveled.
- Landings should be located in the less sloping areas of the Gilpin soil.

Community Development

Suitability: Unsuited

Management concerns:
- The excessive slope and the hazard of erosion are management concerns in areas of the Upshur and Gilpin soils.
- The high shrink-swell potential and hazard of slippage are additional management concerns in areas of the Upshur soil.
- The depth to bedrock is an additional management concern in areas of the Gilpin soil.

Management considerations:
- Because of the slope, these soils are generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Limiting soil disturbance during construction minimizes the hazard of slippage in areas of the Upshur soil.

- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water in the Upshur soil may increase the potential for shrinking and swelling, which may increase the hazard of slippage.
- The soil in disturbed areas should be reseeded after construction is completed.
- Because only a minimal amount of topsoil is available, organic matter or topsoil may need to be added to the site to ensure growth of vegetation.
- Mulching the site helps to hold the seed in place for germination.
- Gullied areas may need to be regraded before establishment of vegetation.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

VdC—Vandalia silt loam, 8 to 15 percent slopes

Setting

Landscape position: On strongly sloping, mainly concave, footslopes and colluvial fans and along drainageways

Composition

Vandalia soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsurface layer:
5 to 9 inches—brown silt loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum

Organic matter content in the surface layer: Moderate
Surface runoff: Medium or high
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained, yellowish brown soils on footslopes; fragic material at a depth of about 2 feet in some areas
- Severely eroded soils
- Soils with slopes of more than 15 percent
- Soils that are subject to rare or occasional flooding and are adjacent to drainageways; commonly in the less sloping areas

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of the Vandalia soil have been cleared and are used as hayland or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 73 for northern red oak
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Seeding logging roads, landings, and areas that have been cut and filled and installing water bars and culverts help to control erosion.
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.

Community Development

Suitability: Limited

Management concerns:

- The slope, the slow permeability, and the hazard of soil slippage are management concerns.

Management considerations:

- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

VdD—Vandalia silt loam, 15 to 25 percent slopes

Setting

Landscape position: Along drainageways and on moderately steep, mainly concave footslopes and colluvial fans

Composition

Vandalia soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsurface layer:
5 to 9 inches—brown silt loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow

Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained, yellowish brown soils on footslopes
- Soils that formed in residuum overlain by colluvium and, in some areas, are less than 65 inches deep over bedrock
- Severely eroded soils
- Very stony or bouldery soils
- Soils with slopes of more than 25 percent
- Soils that are in narrow areas adjacent to drainageways and are subject to rare or occasional flooding; interpretations similar to those of the Sensabaugh soils

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Well drained Duncannon soils immediately adjacent to Ohio River terraces
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used as pasture. Some areas are wooded or used as hayland.

Cropland
Suitability: Limited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Crop rotations that include grasses or legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes.

Woodland
Potential productivity: Site index of 77 for northern red oak

Management concerns:
• The severe hazard of erosion is a management concern.
Management considerations:
• Because this soil is soft when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
• Because of the hazard of erosion, logging roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
• Seeding logging roads, skid trails, and landings after the trees are logged helps to prevent excessive erosion.
• Small areas of the less sloping included soils, if available, and suitable nearly level adjacent areas should be selected as sites for landings.
• Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
• If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
• Subsequent control of the invasion and growth of undesirable species may also be needed.

Community Development
Suitability: Limited
Management concerns:
• The slope, the slow permeability, and the hazard of soil slippage are management concerns.
Management considerations:
• Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
• Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains help to prevent the structural damage caused by shrinking and swelling and by soil slippage.
• Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
• Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
• Seeding and mulching roadbanks after construction will help to control erosion.

Interpretive Groups

Land capability classification: 4e
Farmland of statewide importance: Yes
Hydric soil: No

VdE—Vandalia silt loam, 25 to 35 percent slopes

Setting

Landscape position: On steep, mainly concave footslopes and along drainageways

Composition

Vandalia soil: 65 percent
Inclusions: 35 percent

Typical Profile

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

Subsurface layer:
5 to 9 inches—brown silt loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained, yellowish brown soils on footslopes
- Soils that formed in residuum overlain by colluvium and, in some areas, are less than 65 inches deep over bedrock
- Severely eroded soils
- Very stony or bouldery soils
- Soils with slopes of more than 35 percent
- Soils that are in narrow areas adjacent to drainageways and are subject to rare or occasional flooding; interpretations similar to those of the Sensabaugh soils

Nonlimiting inclusions:
- Soils with slopes of less than 25 percent
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used for pasture. Some areas are wooded or used as hayland.

Cropland
Suitability: Unsuited
Management concerns:
- The very severe hazard of erosion and the slope are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; suited to pasture
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes, in fields where access is available.
- Springs and seeps at the base of slopes may have potential for development into livestock watering sites.

Woodland
Potential productivity: Site index of 77 for northern red oak
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, logging roads and skid trails should be built on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and landings after the trees are logged will also help prevent excessive erosion.
- Small areas of the less sloping included soils, if available, and suitable nearly level adjacent areas should be selected as sites for landings.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may also be needed.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope, the slow permeability, and the hazard of soil slippage are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 6e
Hydric soil: No

VsD3—Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded

Setting

Landscape position: Moderately steep, mainly concave footslopes and colluvial fans
Note: The surface layer of this soil is commonly thinner than noted in the following typical profile because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Vandalia soil: 75 percent
Inclusions: 25 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown silty clay loam

Subsurface layer:
5 to 9 inches—brown silty clay loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Very severe
Slope class: Moderately steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Low
Surface runoff: High
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained soils on footslopes
- Soils that formed in residuum overlain by colluvium and, in some areas, are less than 65 inches deep over bedrock
- Soils with slopes of more than 25 percent
- Soils that are subject to rare or occasional flooding and are in narrow areas adjacent to drainageways

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Soils that are not severely eroded
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used as pasture. Some areas are wooded or are reverting to woodland.

Cropland
Suitability: Limited
Management concerns:
- The very severe hazard of erosion is a management concern.

Management considerations:
- Establishing a vegetative cover is the first step in returning this soil to its potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Lime and fertilizer should be applied according to the results of soil tests.
- Once vegetation is established, a conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Establishing grassed waterways and diversions for the safe removal of concentrated runoff will help to control gully erosion.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Limited
Management concerns:
- The slope and the very severe hazard of erosion in previously eroded areas are management concerns.

Management considerations:
- Establishing a vegetative cover is the first step in returning this soil to its potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Lime and fertilizer should be applied according to the results of soil tests.
- Once vegetation is established, proper stocking rates, controlled grazing, and restricted use during wet and dry periods will help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 77 for northern red oak

Management concerns:
- The slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- Only a limited acreage of this soil is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- When planting trees, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.
- Because this soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, logging roads and skid trails should be built on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and landings after the trees are logged will also help prevent excessive erosion.
- Small areas of the less sloping included soils, if available, and suitable adjacent nearly level areas should be selected as sites for landings.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.

Community Development

Suitability: Limited

Management concerns:
- The slope, the very severe hazard of erosion, the high shrink-swell potential, and the hazard of soil slippage are management concerns.

Management considerations:
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 15 percent is a less costly alternative to land shaping.
- Properly designing and strengthening footings and foundations helps to prevent the structural damage caused by shrinking and swelling.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Building roads and streets on the contour helps to overcome the slope.
- Limiting soil disturbance during construction minimizes the hazard of slippage.
- If the soil is left exposed after construction, surface water will flow into cracks in the soil.
- The excess water may increase the potential for shrinking and swelling, which may increase the hazard of slippage.
- The soil in disturbed areas should be reseeded after construction is completed.
- Because only a minimal amount of topsoil is available, organic matter or topsoil may need to be added to the site to ensure growth of vegetation.
- Mulching the site helps to hold the seed in place for germination.
- Gullied areas may need to be regraded before vegetation can be established.

Interpretive Groups

Land capability classification: 6e
Hydric soil: No

VsE3—Vandalia silty clay loam, 25 to 35 percent slopes, severely eroded

Setting

Landscape position: Steep, mainly concave footslopes and colluvial fans
Note: The surface layer of this soil is commonly thinner than noted in the following typical profile because most of the original surface layer has been removed by erosion and the subsoil possibly is exposed in places.

Composition

Vandalia soil: 65 percent
Inclusions: 35 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown silty clay loam

Subsurface layer:
5 to 9 inches—brown silty clay loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Very severe
Slope class: Steep
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Low
Surface runoff: Very high

Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained, yellowish brown soils on footslopes
- Soils that formed in residuum overlain by colluvium and, in some areas, are less than 65 inches deep over bedrock
- Soils with slopes of more than 35 percent

Nonlimiting inclusions:
- Soils with slopes of less than 25 percent
- Soils that are not severely eroded
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used as pasture. Some are wooded or are reverting to woodland.

Cropland
Suitability: Unsuited
Management concerns:
- The very severe hazard of erosion and the slope are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management concerns:
- The slope and the very severe hazard of erosion in previously eroded areas are management concerns.

Management considerations:
- Establishing a vegetative cover is the first step in returning this soil to its potential productivity.
- Gullied areas may need to be regraded before vegetation can be established.
- Reseeding and mulching bare areas will help to establish a vegetative cover.
- Animals should be kept off seeded areas until grasses have become established.
- Lime and fertilizer should be applied according to the results of soil tests.
- Once vegetation is established, proper stocking rates, controlled grazing, and restricted use during wet and dry periods will help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 77 for northern red oak
Management concerns:
- The excessive slope, the very severe hazard of erosion, and the equipment limitation are management concerns.

Management considerations:
- Only a limited acreage of this soil is used for harvestable timber.
- Planting desirable tree species helps to control erosion and may provide a future source of harvestable timber.
- When planting trees, site preparation by mechanical or chemical means may be needed to help control competing vegetation.

- Subsequent control of the invasion and growth of undesirable species may be needed.
- Because this soil is soft and very slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, logging roads and skid trails should be established on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and landings after the trees are logged will also help prevent excessive erosion.
- Small areas of the less sloping included soils, if available, and suitable nearly level adjacent areas should be selected as sites for landings.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope, the slow permeability, and the hazard of soil slippage are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 7e
Hydric soil: No

VtE—Vandalia silt loam, 15 to 35 percent slopes, very stony

Setting

Landscape position: On steep, mainly concave footslopes and colluvial fans and along drainageways

Composition

Vandalia soil: 65 percent
Inclusions: 35 percent

Typical Profile

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

Subsurface layer:
5 to 9 inches—brown silt loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe or very severe
Slope class: Moderately steep or steep
Stoniness: Very stony
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Moderately well drained soils on footslopes
- Soils that formed in residuum overlain by colluvium and, in some areas, are less than 65 inches deep over bedrock
- Severely eroded soils
- Soils with slopes of more than 35 percent

Nonlimiting inclusions:
- Soils with slopes of less than 15 percent
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used as pasture. Some areas are wooded or are used as hayland.

Cropland
Suitability: Unsuited
Management concerns:
- The very severe hazard of erosion and the slope are management concerns.

Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland
Suitability: Poorly suited to hay; suited to pasture
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The surface may further limit the use of some lesser sloping areas as hayland.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants, especially legumes, in fields where access is available.
- Springs and seeps at the base of slopes may have potential for development into livestock watering sites.

Woodland

Potential productivity: Site index of 77 for northern red oak
Management concerns:

- The severe hazard of erosion is a management concern.

Management considerations:

- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, logging roads and skid trails should be placed on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and landings after the trees are logged will also help to prevent excessive erosion.
- Small areas of the less sloping included soils, if available, and suitable nearly level adjacent areas should be selected as sites for landings.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may also be needed.

Community Development

Suitability: Limited
Management concerns:

- The slope, the slow permeability, and the hazard of slippage are management concerns.

Management considerations:

- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Selecting building sites in areas of the included soils that have slopes of less than 25 percent is a less costly alternative to land shaping.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 6s
Hydric soil: No

VxE—Vandalia silt loam, 15 to 35 percent slopes, bouldery

Setting

Landscape position: On moderately steep and steep, mainly concave footslopes and colluvial fans and along drainageways

Composition

Vandalia soil: 65 percent
Inclusions: 35 percent

Typical Profile

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

Subsurface layer:
5 to 9 inches—brown silt loam

Subsoil:
9 to 13 inches—strong brown silty clay loam
13 to 41 inches—yellowish red channery silty clay loam and silty clay
41 to 57 inches—reddish brown very channery silty clay loam with strong brown mottles

Substratum:
57 to 65 inches—mixed yellowish red, strong brown, and light yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 4 to 6 feet
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe or very severe
Slope class: Moderately steep or steep
Stoniness: Boulders cover 0.01 to 0.1 percent of the surface; in scattered areas throughout the map unit
Rockiness: Nonrocky
Natural fertility: Moderate or high
Reaction: In unlimed areas, very strongly acid to moderately acid in the surface layer and subsoil and strongly acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: High or very high
Depth to bedrock: More than 5 feet
Parent material: Fine textured colluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Moderately well drained, yellowish brown soils on footslopes
- Severely eroded soils

Nonlimiting inclusions:
- Soils with stones less than 25 inches in length
- Soils with slopes of less than 15 percent
- Soils that have a loamy subsoil

Use and Management

Uses: Most areas of this Vandalia soil have been cleared and are used as pasture. A few areas are wooded or are reverting to woodland.

Cropland
Suitability: Unsuited

Management concerns:
- The severe or very severe hazard of erosion, the slope, and the boulders or stones at the surface are management concerns.

Management considerations:
- Because of the slope and the boulders on the surface, this soil is generally unsuited to cultivated crops.
- Growing grasses and legumes for pasture is more effective in controlling erosion than growing cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; suited to pasture

Management concerns:
- The severe or very severe hazard of erosion in overgrazed areas and the boulders or stones on the surface are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.
- The slope and the boulders or surface stones make the operation of conventional equipment used in clipping or in applying fertilizer difficult.

Woodland

Potential productivity: Site index of 77 for northern red oak

Management concerns:
- The severe hazard of erosion and the boulders or stones on the surface are management concerns.

Management considerations:
- Because this soil is soft and slippery when wet, equipment use should be restricted during wet periods to prevent excessive rutting.
- Because of the hazard of erosion, logging roads and skid trails should be placed on the contour and water should be removed by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and landings after the trees are logged will also help to prevent excessive erosion.
- Small areas of the less sloping included soils, if available, and suitable nearly level adjacent areas should be selected as sites for landings.
- Because of the slow permeability and the sticky and plastic subsoil, logging roads should be graveled and, in some areas, landings should be stabilized.
- The boulders or large stones on the surface can hinder harvesting operations and damage equipment.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may also be needed.

Community Development

Suitability: Limited

Management concerns:
- The slope, the slow permeability, the hazard of soil slippage, and the boulders and stones on the surface are management concerns.

Management considerations:
- In areas where the slope is more than 25 percent, this soil is generally unsuited to building site development.
- In areas where the slope is less than 25 percent, this soil may have limited suitability for building site development if extensive land shaping is completed.

- Adding extra reinforcement in footings, backfilling with porous material, and keeping water away from foundations and footings through properly designed surface and subsurface drains will help to prevent the structural damage caused by shrinking and swelling and by the hazard of slippage.
- Increasing the size of septic tank absorption fields and backfilling with gravel help to compensate for the restricted permeability; however, a home aeration unit or a different modification to the absorption area may provide a more reliable method of wastewater treatment.
- Building roads and streets on the contour helps to overcome the slope.
- Seeding and mulching roadbanks after construction will help to control erosion.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.

Interpretive Groups

Land capability classification: 7s
Hydric soil: No

W—Water

Setting

This map unit consists of areas inundated with water for most of the year and generally includes rivers, lakes, and ponds. The Ohio River and Kanawha River account for the majority of the acreage of the map unit. In Mason County, the McClintic Wildlife Management Area includes about 160 acres of water in 41 small impoundments. In Jackson County, six flood-control structures and Rollins Lake account for about 800 acres of water. Farm ponds account for the remaining acreage of this map unit.

Interpretive Groups

No interpretations are given for this map unit.

WsA—Wheeling silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level terraces along the Ohio River (fig. 13)

Composition

Wheeling soil: 80 percent
Inclusions: 20 percent

Typical Profile

Surface layer:
0 to 12 inches—brown silt loam

Subsoil:
12 to 43 inches—yellowish brown silt loam and loam
43 to 58 inches—stratified dark yellowish brown and light yellowish brown fine sandy loam and strong brown sandy loam

Substratum:
58 to 80 inches—stratified dark yellowish brown fine sandy loam, strong brown sandy loam, and brownish yellow loamy sand

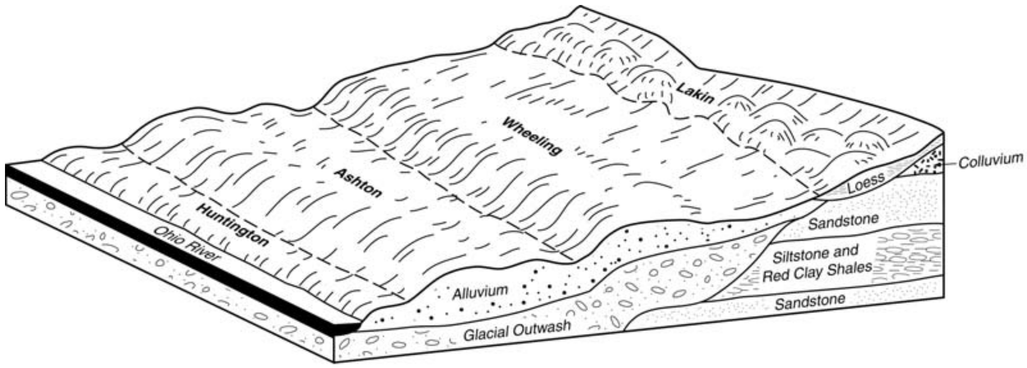

Figure 13.—A typical pattern of soils and parent material along the Ohio River in Jackson and Mason Counties. The Wheeling soil is in the first nonflooding terrace position, which makes it suited to most land uses.

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: None or slight
Slope class: Nearly level
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 3 percent
- Moderately well drained Gallipolis soils
- Soils that have a fine-loamy particle-size control section
- Well drained Chavies soils

Nonlimiting inclusions:
- Soils that have a fine-silty particle-size control section

Use and Management

Uses: This Wheeling soil is used as cropland, hayland, pasture, or woodland.

Cropland

Suitability: Well suited
Management concerns:
- The hazard of erosion is a management concern.

Management considerations:
- Cultivated crops can be grown continuously, but planting a cover crop helps to control erosion.

- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Erosion is a hazard if pastures are overgrazed.

Management considerations:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- No major hazards or limitations affect planting or harvesting.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.

Community Development
Suitability: Well suited
Management concerns:
- Few limitations affect most urban uses.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 1
Prime farmland: Yes
Hydric soil: No

WsB—Wheeling silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping terraces along the Ohio River

Composition

Wheeling soil: 85 percent
Inclusions: 15 percent

Typical Profile

Surface layer:
0 to 12 inches—brown silt loam

Subsoil:
12 to 43 inches—yellowish brown silt loam and loam

43 to 58 inches—stratified dark yellowish brown and light yellowish brown fine sandy loam and strong brown sandy loam

Substratum:
58 to 80 inches—stratified dark yellowish brown fine sandy loam, strong brown sandy loam, and brownish yellow loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 5 feet
Parent material: Fine-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Moderately well drained Gallipolis soils
- Soils that have a fine-loamy particle-size control section
- Well drained Chavies soils

Nonlimiting inclusions:
- Soils with slopes of less than 3 percent
- Soils that have a fine-silty particle-size control section

Use and Management

Uses: This Wheeling soil is used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The moderate hazard of erosion is a management concern.

Management considerations:
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect ground water.

Pasture and Hayland
Suitability: Well suited
Management concerns:
- Preventing damage to sod during wet periods and the moderate hazard of erosion are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak
Management concerns:
- The moderate hazard of erosion is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.

Community Development
Suitability: Suited
Management concerns:
- Only a few limitations affect urban uses.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

WsC—Wheeling silt loam, 8 to 15 percent slopes

Setting

Landscape position: Sloping terraces along the Ohio River

Composition

Wheeling soil: 70 percent
Inclusions: 30 percent

Typical Profile

Surface layer:
0 to 12 inches—brown silt loam

Subsoil:
12 to 43 inches—yellowish brown silt loam and loam
43 to 58 inches—stratified dark yellowish brown and light yellowish brown fine sandy loam and strong brown sandy loam

Substratum:
58 to 80 inches—stratified dark yellowish brown fine sandy loam, strong brown sandy loam, and brownish yellow loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: High
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately acid in the subsoil and substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Fine-loamy alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Moderately well drained Gallipolis soils
- Soils that have a fine-loamy particle-size class
- Well drained Chavies soils

Nonlimiting inclusions:
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Wheeling soil is used as cropland, hayland, pasture, or woodland.

Cropland
Suitability: Suited
Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- A crop rotation that includes close-growing crops, a conservation tillage system, grassed waterways, cover crops, and crop residue management help to prevent excessive soil loss.
- Ensuring that nutrients in manure and fertilizer applications do not exceed the plant nutrient requirements helps to protect surface water and ground water.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion if sod is removed by overgrazing is a management concern.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 80 for northern red oak

Management concerns:
- The severe hazard of erosion is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- Logging roads and landings should be built on the gentler slopes.
- Seeding logging roads, skid trails, and landings and installing water bars and culverts help to control erosion.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.

Community Development
Suitability: Suited
Management concerns:
- The slope and the hazard of erosion are management concerns.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

WuB—Wheeling-Urban land complex, 0 to 8 percent slopes

Setting

Landscape position: Terraces along the Ohio River (fig. 14)
Note: The Wheeling soil and areas of Urban land are so intricately mixed that it was not practical to map them separately.

Composition

Wheeling soil: 45 percent
Urban land: 35 percent
Inclusions: 20 percent

Typical Profile

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

Subsoil:
12 to 43 inches—yellowish brown silt loam and loam
43 to 58 inches—stratified dark yellowish brown and light yellowish brown fine sandy loam and strong brown sandy loam

Figure 14.—An area of Wheeling-Urban land complex, 0 to 8 percent slopes, on the terraces in the background. The Wheeling soil is used for both agricultural production and urban development. Chagrin soils are on the flood plain in the foreground.

Substratum:

58 to 80 inches—stratified dark yellowish brown fine sandy loam, strong brown sandy loam, and brownish yellow loamy sand

Urban land

Urban land consists of areas covered by buildings, streets, parking lots, and other urban structures. A typical profile is not given because Urban land is a nonsoil area.

Soil Properties and Qualities

Drainage class: Wheeling—well drained
Permeability: Wheeling—moderate
Available water capacity: Wheeling—high
Depth to a seasonal high water table: Wheeling—more than 6 feet
Flooding: None
Shrink-swell potential: Wheeling—low
Hazard of erosion: Wheeling—slight or moderate
Slope class: Nearly level or gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Wheeling—high
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately acid in the subsoil and substratum of the Wheeling soil
Organic matter content in the surface layer: Wheeling—moderate
Surface runoff: Wheeling—medium
Depth to bedrock: Wheeling—more than 5 feet
Parent material: Fine-loamy alluvium, where undisturbed

Minor Components

Limiting inclusions:
- Soils that have a seasonal high water table
- Soils with slopes of more than 8 percent
- Soils that are subject to flooding, generally near the edge of a map unit that also is subject to flooding

Nonlimiting inclusions:
- Soils that have a fine-silty subsoil

Use and Management

Uses: This map unit is used for community development. It is not suited to cultivated crops, hay, or pasture and is not rated for woodland productivity.

Community Development
Suitability: Well suited
Management concerns:
- Few limitations affect most urban uses.

Management considerations:
- The depth to sandy textures should be taken into consideration when waste disposal systems are designed.
- The waste disposal system or structure should be designed to include the loamy textures of the subsoil.
- Connection to a public water and sewer system, if available, is an acceptable alternative.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: Wheeling—1; Urban land—not assigned
Hydric soil: No

ZoB—Zoar silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping slackwater terraces along the major tributaries of the Kanawha and Ohio Rivers

Composition

Zoar soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
9 to 13 inches—yellowish brown silty clay loam
13 to 20 inches—strong brown silty clay loam with pinkish gray iron depletions
20 to 29 inches—reddish brown silty clay loam with pinkish gray iron depletions
29 to 39 inches—strong yellowish red silty clay loam with pinkish gray iron depletions

Substratum:
39 to 60 inches—yellowish red silty clay loam with iron depletions and concentrations

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate or high
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Moderate
Slope class: Gently sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 5 feet
Parent material: Slackwater alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Somewhat poorly drained and poorly drained soils on nearly level slopes and in slight depressions

Nonlimiting inclusions:
- Soils with iron depletions more than 10 inches below the top of the argillic horizon
- Moderately well drained soils that formed in colluvium

Use and Management

Uses: This Zoar soil is used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The seasonal wetness and the moderate hazard of erosion are management concerns.

Management considerations:
- Delaying tillage until the soil is reasonably dry and applying crop residue management help to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Preventing damage to sod during wet periods and the moderate hazard of erosion are management concerns.

Management considerations:
- Proper stocking rates, a rotation grazing system, and deferred grazing in the spring until the soil is reasonably firm help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 70 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.
- The trees that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, can reduce the seedling mortality rate.

Community Development
Suitability: Suited
Management concerns:
- The seasonal wetness, the slow permeability in the lower part of the subsoil, and low strength are limitations affecting urban development.

Management considerations:
- An alternative septic tank system that compensates for the seasonal high water table and the slow permeability should be considered.
- Because the soil is soft when wet, the pavement cracks under heavy loads if roads are improperly constructed.

Interpretive Groups

Land capability classification: 2e
Farmland of statewide importance: Yes
Hydric soil: No; however, map unit inclusions may be hydric soils

ZoC—Zoar silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping slackwater terraces along the major tributaries of the Kanawha and Ohio Rivers

Composition

Zoar soil: 75 percent
Inclusions: 25 percent

Typical Profile

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

Subsoil:
9 to 13 inches—yellowish brown silty clay loam
13 to 20 inches—strong brown silty clay loam with pinkish gray iron depletions
20 to 29 inches—reddish brown silty clay loam with pinkish gray iron depletions
29 to 39 inches—strong yellowish red silty clay loam with pinkish gray iron depletions

Substratum:
39 to 60 inches—yellowish red silty clay loam with iron depletions and concentrations

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow or slow

Available water capacity: Moderate or high
Depth to a seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: Nonstony
Rockiness: Nonrocky
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 5 feet
Parent material: Slackwater alluvium

Minor Components

Limiting inclusions:
- Soils with slopes of more than 15 percent

Nonlimiting inclusions:
- Soils that have iron depletions more than 10 inches below the top of the argillic horizon
- Soils with slopes of less than 8 percent

Use and Management

Uses: This Zoar soil is used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Limited
Management concerns:
- The severe hazard of erosion and the seasonal wetness are management concerns.

Management considerations:
- Delaying tillage until the soil is reasonably dry helps to maintain fertility and tilth.
- A conservation tillage system, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management concerns:
- The severe hazard of erosion if sod is removed by overgrazing and the seasonal wetness are management concerns.

Management considerations:
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep pastures in good condition.

Woodland
Potential productivity: Site index of 70 for northern red oak
Management concerns:
- The seasonal wetness is a management concern.

Management considerations:
- Only a limited acreage of this soil is used as woodland.
- The seasonal high water table restricts equipment use to the summer months when the soil is dry or to midwinter when the soil is frozen or has an adequate snow cover.

- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of the invasion and growth of undesirable species may be needed.
- The trees that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, can reduce the seedling mortality rate.

Community Development
Suitability: Limited
Management concerns:
- The slope, the seasonal wetness, the slow permeability in the lower part of the subsoil, and low strength are limitations affecting urban development.

Management considerations:
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- An alternative septic tank system that compensates for the seasonal high water table and the slow permeability should be considered.
- Because the soil is soft when wet, the pavement cracks under heavy loads if roads are improperly constructed.

Interpretive Groups

Land capability classification: 3e
Farmland of statewide importance: Yes
Hydric soil: No

Use and Management of the Soils

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

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

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

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

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

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

Interpretive Ratings

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

Rating Class Terms

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

Numerical Ratings

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

Crops and Pasture

General management needed for crops and 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 from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Mason County is one of the top agricultural counties in West Virginia (fig. 15). This is largely attributable to the two large river valleys in the county, which provide suitable acreage for cultivated crops, hay and pasture, and livestock production. Agriculture is also one of the major enterprises in Jackson County; however, most of the farmland in the county is on sloping uplands and is used for cattle operations. Some of the farmland in Jackson County is along the Ohio River, and this land is used for cultivated crops or hay. Some general principles apply throughout the survey area to all soils suitable for farm crops and pasture, but individual soils or groups of soils may require different kinds of management.

Most of the soils in the survey area are low or moderate in fertility and require applications of lime and fertilizer for optimum production. The amounts of lime and fertilizer applied depend on the type of soil, the cropping history, the type of crop grown, and tests and analyses of individual soil samples.

Figure 15.—The McCausland Memorial Farm in Mason County includes an extensive amount of bottom land suited to farming. In this area of the Kanawha River valley, the Glenford soils are in the foreground and the Melvin, Lindside, Gallipolis, and Elk soils are in the background.

The organic matter content is generally low in most of the soils in the survey area, except in areas adjacent to the major rivers, where it is moderate. Organic matter content can be kept at current levels by controlling erosion, adding manure, returning crop residue to the soil, and growing sod crops, cover crops, and green manure crops.

Tillage tends to break down the soil structure of the surface layer. It should be kept to the minimum necessary to prepare the seedbed and control weeds. Some soils under continuous cultivation have developed a firm, dense layer immediately below the plow layer that interferes with permeability and root penetration. Deep chisel plowing will help to break up this layer. Maintaining the organic matter content of the plow layer helps to protect the soil structure.

Runoff and erosion on farmland occur mainly while a cultivated crop is growing or soon after it is harvested. All of the gently sloping and steeper soils that are cultivated are subject to erosion and thus require a cropping system that helps to control erosion. The main management needs include the proper rotation of crops, minimum tillage, no-till planting, crop residue management, cover crops and green manure crops, and application of lime and fertilizer. A common practice in the river valleys is to disk fields after harvest and leave them bare during the winter months so that freezing and thawing will help to break up clods and make tilling easier in the spring. A better option is to seed the field with a cover crop or green manure crop that will keep erosion to a minimum. Other major erosion-control measures are contour cultivation, contour stripcropping, diversions to control runoff, and grassed waterways. The Upper Flats area of Mason County is well suited to these measures, which may be used in combination for maximum effectiveness.

Using the soil as pasture or hayland and maintaining a healthy grass sod help to control erosion in most areas (fig. 16). A high level of pasture management, which includes nutrient management and controlled grazing, is needed on most hillside pastures to help provide sufficient ground cover for the prevention of excessive

Figure 16.—Cutting hay in an area of the Moshannon, Upshur, and Gilpin soils in Jackson County.

erosion. Dividing large pastures into smaller fields and grazing these fields in a planned rotation allow idle periods for the regrowth and improved health of pasture plants. On the steeper slopes, good management of existing grasses is a better choice than attempting tillage to establish different grass species. Pastures containing a large amount of broom sedge can generally be improved by implementing an intensive rotation grazing system and applying lime and fertilizer according to soil test results.

Erosion is a particular concern around waterways in pastured areas because it results not only in loss of topsoil but also in degradation of water quality. Streambanks should be protected by fencing and limiting access to developed stream crossing areas. Keeping livestock out of waterways can also be achieved by establishing water sources away from streams. Pond and spring developments in appropriate areas are good alternatives. Development of several good water facilities is an integral part of intensive grazing plans, which in turn contribute to improved quality and quantity of livestock production.

Yields per Acre

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

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

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

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 information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

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

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

Class 1 soils have slight limitations that restrict their use.

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

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

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

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

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

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

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

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

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

The acreage of soils in each capability class or subclass is shown in table 6. The acreage listed as “Unclassified” includes that of the minor components in the individual map units, any water areas of significant size, and other miscellaneous areas. Minor components were not assigned a land capability class because they were of minimal extent in the map unit. 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 and Other Important Farmlands

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation’s food supply.

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

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

About 48,890 acres in the survey area, or about 8.3 percent of the total acreage, meets the soil requirements for prime farmland. Nearly all of this acreage is on flood plains or terraces along the Ohio and Kanawha Rivers and their major tributaries.

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

In some areas, land that does not meet the criteria for prime farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

The map units in the survey area that are considered prime farmland or farmland of statewide or local importance are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Agricultural Waste Management

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

Table 8 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store domestic or animal waste. Domestic wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and application of sewage sludge).

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

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry and is either solid, slurry, or liquid. Its nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes are not considered in the ratings.

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

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

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

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The soil erodibility factor K and slope are considered in estimating the likelihood that water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Soils frozen during the winter months are unsuitable for waste treatment.

Forest Productivity and Management

Barbara McWhorter, state forester, Natural Resources Conservation Service, and Larry Six, Mason County service forester, West Virginia Division of Forestry, helped to prepare this section.

Woodland covers about 209,000 acres, or nearly 70 percent of the total acreage, in Jackson County. About 91 percent of the woodland acreage in the county is owned by private individual landowners, 5 percent by the forest industry, 3 percent by corporations, and the remaining 1 percent by State, county, and municipal governments.

The common forest types, or natural associations of tree species, and their percentages of wooded area are oak-hickory, 85 percent; loblolly and shortleaf pines, 8 percent; and oak-pine, 7 percent (DiGiovanni 1990).

Approximately 45 percent of the timber in Jackson County is of sawtimber size (11 inches diameter breast height or larger), 32 percent is of poletimber size (more than 5 inches diameter breast height but less than sawtimber size), and the remaining 23 percent is comprised of sapling and seedling size trees.

Forests and their management play an important role in the economy of Jackson County. A major sawmill and two concentration yards operate in the county, as does a dry kiln. In addition to green lumber cants, specialty wood products such as molding, door jams, skids, and archery bows are produced (West Virginia Department of Commerce 1997). Several Christmas tree operations also exist in the county.

About 169,000 acres, or nearly 60 percent of the total acreage, in Mason County is used as woodland. About 90 percent of the woodland in the county is owned by individual landowners, while 8 percent is owned by the State and 2 percent by corporations.

The common forest types and their percentages of wooded area are oak-hickory, 74 percent; oak-pine, 12 percent; northern hardwoods, or birch-beech-maple, 9 percent; and loblolly-shortleaf pine, 5 percent (DiGiovanni 1990). Most areas of pine forest occupy land that was formerly farmed. As farmland was abandoned during the past few decades, these areas regenerated in pine.

More than half of the timber in Mason County is of sawtimber size. The remaining timber is comprised of relatively equal amounts of poletimber size and of sapling and seedling size trees (fig. 17).

Figure 17.—An area of Gilpin-Upshur complex, 25 to 35 percent slopes, used as forestland. The scattered areas of large trees show the potential productivity of these soils when the woodland is properly managed.

Forests and their management also play an important role in the economy of Mason County. There are currently five sawmills and two concentration yards operating in the county. In addition to lumber, veneer, blocking, ties, cants, and specialty wood products, such as mulch, trusses, and pallets, are produced (West Virginia Department of Commerce 1997). Several Christmas tree operations also exist in the county. There is currently a ready market for high-quality Christmas trees.

Soil properties have a strong influence on tree species, tree growth, and woodland management. The soil depth and texture, for example, affect the available water capacity, which influences the occurrence of species and the rate of growth. Other features, such as slope, stoniness or rockiness, or the presence of a clayey subsoil, influence the kind of management needed. Aspect, or the direction a slope faces, also affects tree growth and management.

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

Forest Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the “National Forestry Manual,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Annual production, a number, is the yield likely to be produced by the most important tree species. This number indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand. The number is expressed as cubic feet per acre, calculated at the age of culmination of the mean annual increment (CMAI), or as board feet per acre, calculated using the International 1/4-inch rule. A board foot is the amount of wood contained in an unfinished board that is 1 inch thick, 12 inches long, and 12 inches wide.

Forest Management

In tables 10a through 10c, 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 the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (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 in local offices 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 that is indurated, 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 forest 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 off-site 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 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.

Recreation

Jackson County has a number of flood-control projects that provide opportunities for fishing, boating, hunting, and other recreational activities. These projects include Woodrum Lake on the Pocatalico River and the O'Brien, Right Fork of Frozencamp, Left Fork of Frozencamp, and Elk Fork Lakes on Mill Creek. These lakes provide more than 750 acres of flat water available for public fishing. Frozen Camp Wildlife Management Area and Woodrum Wildlife Management Area provide additional wooded acres surrounding these lakes for outdoor-related activities. Frozen Camp is comprised of 1,667 acres of wooded slopes with a few areas of open bottom land and ridgetops. Woodrum has 1,700 acres of sloping to very steep oak-hickory and oak-pine forest with scattered abandoned farms. Other public areas providing water-related recreational opportunities include Rollins Lake, Turkey Run Lake, and various public stream access points on the Ohio River and Mill Creek.

Mason County has two state-owned Wildlife Management Areas, which provide opportunities for hunting, fishing, hiking, bird-watching, primitive camping, and other recreational activities. The Chief Cornstalk Wildlife Management Area, located south of the Kanawha River between the communities of Beech Hill and Arlee, consists of about 11,300 acres of wooded side slopes and ridgetops interspersed with small fields and food plots. This property was once owned by the Soil Conservation Service and was managed by the Federal government to restore the land from severe erosion and past misuse. The McClintic Wildlife Management Area, located north of Point Pleasant, consists of about 3,500 acres of cultivated fields, overgrown brushy fields, wooded side slopes, and waterfowl impoundments. Its diversity in habitat and close proximity to the Ohio River make it a popular area for all wildlife-related activities.

Other public areas providing recreational opportunities include the Racine Locks and Dam near Letart, the Robert C. Byrd Locks and Dam near Apple Grove, Tu-Endie-Wei Point Pleasant Battle Monument State Park in Point Pleasant, Krodel Park in Point Pleasant, and a small area of the Green Bottom Wildlife Management Area along the Cabell County border. The Ohio and Kanawha Rivers also have areas available for public stream access.

In addition, both counties have a few privately owned golf courses and campgrounds. The Cedar Lakes Conference Center near Ripley hosts various activities for West Virginia's schools, 4-H clubs, and FFA chapters, as well as the State's annual arts and crafts festival.

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

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

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

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

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 cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Casey Shrader, state wildlife biologist, Natural Resources Conservation Service, helped to prepare this section.

Wildlife species in Jackson and Mason Counties are typical of those in much of West Virginia. The present patterns of land use favor those species of wildlife that inhabit woodlands and the transitional zones between grassland, cropland, and woodland. Both counties support a large population of white-tailed deer. Wild turkey numbers are increasing and rapidly expanding. The area's newest inhabitant, the coyote, continues to increase in numbers throughout the area. A small population of black bears, mainly located in Jackson County, is slowly expanding its range. The woodlands of the two counties continue to provide suitable habitat for gray and fox squirrels, ruffed grouse, woodland furbearers, small mammals, and a variety of songbirds and cavity-nesting birds. When timber is harvested, the land is generally allowed to return to timber production. Private landowners can favor certain species of woodland wildlife by utilizing harvesting methods most beneficial to those species. Chief Cornstalk, McClintic, Frozen Camp, and Woodrum Wildlife Management Areas provide large areas of intensively managed wildlife habitat on public lands.

A reduction in the number of active small family farms has resulted in a significant decline of some species of openland, or "farmland," wildlife. Implementation of more efficient or "clean" farming practices, resulting in fewer idle and weedy areas, has also contributed to the reduction in numbers of these species. Isolated populations of northern bobwhite quail do exist, but these quail are victims of high predation rates among various raptors and numerous red and gray fox populations. Mourning dove populations, however, are currently among the highest in the State. Cottontail rabbits are not as numerous as they once were, but they are encountered frequently throughout the two counties. These species thrive in areas with mixed, interspersed patterns of grassland, cropland, and shrub cover. Individual landowners can produce suitable habitat by manipulating current vegetation patterns, and then maintaining these patterns once established.

The counties' waters support healthy populations of a variety of game fish, including smallmouth bass, largemouth bass, muskellunge, channel catfish, and a variety of sunfish. The flood-control projects in Jackson County provide numerous recreational opportunities for fishing these species. Bass populations are excellent in those impoundments currently supporting catch-and-release regulations. Access to the Ohio and Kanawha Rivers provides additional excellent recreational opportunities for fishing for the previously listed species, as well as for hybrid striped bass, sauger, and walleye. The most suitable habitat on the rivers is at creek mouths and in the immediate tailwater areas of the locks and dam structures. Most streams in the two counties support numerous nongame species. Further point and nonpoint sources of pollution need to be reduced in these drainages to protect these resources.

The waterfowl populations in Jackson and Mason Counties are among the highest in the State. These species utilize the relatively abundant wetland complexes along the Ohio and Kanawha Rivers and their major tributaries. Although populations do not compare in terms of total numbers with those of coastal areas, the wetlands, small ponds, streams, and rivers provide much better waterfowl habitat than most other regions of West Virginia. In addition, these types of areas provide transitory habitat for migratory species within the Mid-Atlantic flyway. This affords excellent opportunities to observe species of waterfowl, wading birds, and shorebirds that are not native to the area. Several species of raptors may be observed in the riparian and farmland areas along the two rivers and their major tributaries. Canada geese are numerous and have reached nuisance proportions in some areas. Landowners desiring to increase waterfowl populations can increase nesting sites by creating shallow-water habitats and supplemental nesting structures.

Most fish and game populations in the survey area are well established. While a few species are declining in numbers, most are stable or increasing. Habitat manipulation can result in localized increases of declining species.

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

In table 12, 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 timothy, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are indiangrass, goldenrod, beggarweed, joepyeweed, wild carrot, and dandelion.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, and blackberry.

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

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, rushes, sedges, and reeds.

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

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

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

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, migratory wading and shore birds, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others 1979; National Research Council 1995; Tiner 1985; U.S. Army Corps of Engineers 1987). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff 2003) and in the “Soil Survey Manual” (Soil Survey Division Staff 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt, Whited, and Pringle 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council 1995; Hurt, Whited, and Pringle 1998).

CfA Chagrin-Melvin complex, 0 to 3 percent slopes, frequently flooded (Melvin part)
GsA Ginat silt loam, 0 to 3 percent slopes
GtA Ginat silt loam, 0 to 3 percent slopes, rarely flooded
GvA Ginat silty clay loam, 0 to 3 percent slopes, rarely flooded
MdA Melvin silt loam, 0 to 3 percent slopes, occasionally flooded
MeA Melvin silt loam, 0 to 3 percent slopes, rarely flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

AfA Ashton fine sandy loam, 0 to 3 percent slopes, rarely flooded
AfB Ashton fine sandy loam, 3 to 8 percent slopes, rarely flooded
AsA Ashton silt loam, 0 to 3 percent slopes, rarely flooded
AsB Ashton silt loam, 3 to 8 percent slopes, rarely flooded
CdA Chagrin loam, 0 to 3 percent slopes, occasionally flooded
EkA Elk silt loam, 0 to 3 percent slopes, rarely flooded
EkB Elk silt loam, 3 to 8 percent slopes, rarely flooded
GfA Gallipolis silt loam, 0 to 3 percent slopes
GfB Gallipolis silt loam, 3 to 8 percent slopes
GgA Gallipolis silt loam, 0 to 3 percent slopes, rarely flooded
GgB Gallipolis silt loam, 3 to 8 percent slopes, rarely flooded
GhB Gallipolis-Urban land complex, 0 to 8 percent slopes
GxB Glenford silt loam, 3 to 8 percent slopes
GxC Glenford silt loam, 8 to 15 percent slopes
HaA Hackers silt loam, 0 to 3 percent slopes, rarely flooded
HaB Hackers silt loam, 3 to 8 percent slopes, rarely flooded
HoA Huntington silt loam, 0 to 3 percent slopes, occasionally flooded
HuA Huntington silt loam, 0 to 3 percent slopes, rarely flooded
LaB Lakin loamy fine sand, 3 to 8 percent slopes
LaC Lakin loamy fine sand, 8 to 15 percent slopes
LaD Lakin loamy fine sand, 15 to 25 percent slopes
LbB Lakin-Urban land complex, 0 to 8 percent slopes
LsA Lindside silt loam, 0 to 3 percent slopes, occasionally flooded
LtA Lindside silt loam, 0 to 3 percent slopes, rarely flooded
LvA Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded
McA McGary-Shircliff complex, 0 to 3 percent slopes
MgB Monongahela silt loam, 3 to 8 percent slopes
MoA Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded
OmA Omulga silt loam, 0 to 3 percent slopes

OmB Omulga silt loam, 3 to 8 percent slopes
SeA Senecaville silt loam, 0 to 3 percent slopes, occasionally flooded
SfA Senecaville silt loam, 0 to 3 percent slopes, rarely flooded
SnA Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded
SxB Shircliff-McGary complex, 3 to 8 percent slopes
TaA Taggart silt loam, 0 to 3 percent slopes
TfA Taggart silt loam, 0 to 3 percent slopes, rarely flooded
ZoB Zoar silt loam, 3 to 8 percent slopes

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 80 inches. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 80 inches of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of earthfill and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 13a and 13b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 80 inches. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

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

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

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

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

Sanitary Facilities

Tables 14a and 14b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 80 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

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

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

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

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

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 15 gives information about the soils as potential sources of topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 80 inches.

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.

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

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

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

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

The ratings are for the whole soil, from the surface to a depth of about 80 inches. 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).

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

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

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

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

Soil Properties

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

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

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

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

Engineering Index Properties

Table 17 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.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 2000).

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

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table. Additionally, it should be noted that the range of index properties (Atterberg limits) is not inclusive.

Physical Properties

Table 18 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.

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 18, 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 18, 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 18, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

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

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

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

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

Chemical Properties

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

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

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliquivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliquivalents 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 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

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

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

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

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

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

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

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

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

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

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

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

Soil Features

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

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

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

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

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

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

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1999, 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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 class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff 2003). 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.

Allegheny Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Sloping high terraces
Parent material: Loamy alluvium
Slope range: 8 to 15 percent

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

Allegheny loam, in a field in Teays Valley, Putnam County, West Virginia; about 500 yards east of the intersection of Hedrick Road and the Chesapeake and Ohio Railroad track, about 75 feet north of the railroad track; USGS Scott Depot topographic quadrangle.

Ap—0 to 8 inches; dark brown (10YR 4/3) loam; moderate fine and medium granular structure; very friable; many fine and very fine roots; very strongly acid; abrupt wavy boundary.

BA—8 to 15 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; many very fine roots; very strongly acid; clear wavy boundary.

Bt1—15 to 28 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; common very fine and few fine roots; common discontinuous clay skins on faces of peds; very strongly acid; clear wavy boundary.

Bt2—28 to 40 inches; strong brown (7.5YR 5/8) clay loam; moderate medium angular and subangular blocky structure; friable; common very fine roots; common discontinuous clay skins and coatings on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—40 to 49 inches; strong brown (7.5YR 5/8) loam; weak and moderate medium and coarse subangular blocky structure; friable; common very fine roots; common discontinuous clay films and coatings on faces of peds; very strongly acid; clear wavy boundary.

C—49 to 60 inches; strong brown (7.5YR 5/8) sandy loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 35 to 55 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to extremely acid
Content of rock fragments: 0 to 10 percent in the upper part of the solum and 0 to 20 percent in the lower part of the solum and in the C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 2 to 4
Texture—loam

BA horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 4 to 6
Texture—loam, silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 3 to 8
Texture—loam, clay loam

C horizon:
Color—hue of 10YR or 7.5YR; value of 4 to 6; chroma of 3 to 8
Texture—loam, sandy loam, sandy clay loam, clay loam

Ashton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Second bottoms and low stream terraces along the Ohio and Kanawha Rivers
Parent material: Alluvial materials washed from the uplands
Slope range: 0 to 8 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Mollic Hapludalfs

Typical Pedon

Ashton silt loam, in a cultivated field along the Ohio River in Cabell County, West Virginia; about 2.5 miles west of the Mason County line, about 400 yards north of State Route 2; USGS Glenwood topographic quadrangle.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine and medium granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.
BA—10 to 15 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; neutral; clear smooth boundary.
Bt1—15 to 26 inches; brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; slightly acid; clear wavy boundary.
Bt2—26 to 39 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct clay films on faces of peds; slightly acid; clear wavy boundary.
BC—39 to 50 inches; brown (7.5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; common distinct clay films on faces of peds; slightly acid; gradual wavy boundary.
C—50 to 65 inches; brown (7.5YR 4/4) silt loam; thin layers of loam and sandy loam; massive; friable; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral
Content of rock fragments: Generally none in the control section but ranges to as much as 5 percent in the substratum

Ap horizon:
Color—hue of 7.5YR or 10YR; value—3 (less than 6 dry); chroma of 2 or 3
Texture—silt loam, fine sandy loam

BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4; chroma of 2 to 4
Texture—silt loam, fine sandy loam

Bt horizon:
Color—hue of 5YR or 7.5YR; value of 3 to 5; chroma of 3 to 6
Texture—silt loam, silty clay loam, loam

BC horizon (if it occurs):
Color—hue of 5YR or 7.5YR; value of 3 to 5; chroma of 3 to 6
Texture—silt loam, silty clay loam, loam

C horizon:
Color—hue of 5YR to 10YR; value of 3 to 5; chroma of 3 to 6
Texture—silt loam, silty clay loam, silty clay, loam, fine sandy loam

Cedarcreek Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: Gently sloping to steep, reclaimed and unreclaimed areas where surface mining has occurred
Parent material: Overburden from surface mining operations
Slope range: 3 to 35 percent

Taxonomic classification: Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents

Typical Pedon

Cedarcreek channery loam, 15 to 35 percent slopes, very stony, in a reclaimed surface-mined area about 2 miles east of Clifton, in Mason County, West Virginia; about 0.2 mile southeast of the intersection of State Routes 1 and 1/3; USGS Cheshire topographic quadrangle; lat. 38 degrees 58 minutes 49 seconds N. and long. 82 degrees 01 minute 27 seconds W.

A—0 to 10 inches; brown (7.5YR 5/4) channery loam; common medium faint brown (7.5YR 5/3) mottles near bottom of horizon; massive parting to weak coarse granular structure; friable; common fine roots; 15 percent rock fragments (90 percent sandstone, 10 percent shale); very strongly acid; gradual wavy boundary.
C1—10 to 24 inches; mixed gray (10YR 5/1) and yellowish brown (10YR 5/6) very channery loam; massive; friable; 40 percent rock fragments (50 percent gray shale, 50 percent sandstone); extremely acid; clear wavy boundary.
C2—24 to 70 inches; mixed yellowish brown (10YR 5/6 and 5/4) and gray (10YR 5/1) very channery sandy loam; massive; friable; 50 percent rock fragments (65 percent sandstone, 15 percent shale, 15 percent siltstone, 5 percent coal); extremely acid.

Range in Characteristics

Depth to bedrock: More than 65 inches
Reaction: In unlimed areas, strongly acid to extremely acid
Content of rock fragments: 15 to 80 percent, by volume, throughout the profile, averaging 35 percent or more in the control section

A horizon:
Color—7.5YR to 5Y or is neutral; value of 2 to 5; chroma of 0 to 6

Texture—loam

C horizon:
Color—hue of 7.5YR to 5Y; value of 2 to 6; chroma of 1 to 8
Texture—loam, silt loam, sandy loam

Chagrin Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Flood plains, commonly downstream along tributaries of the Ohio and Kanawha Rivers
Parent material: Loamy alluvial sediments
Slope range: 0 to 3 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Chagrin loam, 0 to 3 percent slopes, occasionally flooded, in a field along Sixteen Mile Creek (of the Kanawha River) in the Chief Cornstalk Wildlife Management Area in Mason County, West Virginia; about 0.2 mile west of the intersection of U.S. Route 35 and State Route 78, about 50 yards south of State Route 78; USGS Robertsburg topographic quadrangle; lat. 38 degrees 40 minutes 49 seconds N. and long. 81 degrees 59 minutes 25 seconds W.

Ap—0 to 6 inches; brown (7.5YR 4/3) loam; weak coarse granular structure; very friable; few fine and medium roots; moderately acid; clear smooth boundary.
Bw1—6 to 22 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; few fine roots; moderately acid; clear wavy boundary.
Bw2—22 to 36 inches; strong brown (7.5YR 4/6) loam; weak coarse subangular blocky structure; friable; few fine roots; moderately acid; clear wavy boundary.
C1—36 to 48 inches; brown (7.5YR 4/4) fine sandy loam with pockets of loam; massive; very friable; moderately acid; clear wavy boundary.
C2—48 to 65 inches; dark yellowish brown (10YR 4/4) fine sand; single grained; loose; slightly acid.

Range in Characteristics

Thickness of the solum: 24 to 48 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral
Content of rock fragments: 0 to 35 percent in the A horizon and 0 to 15 percent in the B and C horizons

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 4 or of 2 to 4 if horizon is 1 to 4 inches thick; chroma of 2 to 4
Texture—loam, silt loam

Bw horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6 or of 2 or 3 if horizon is thin; chroma of 3 to 6 or of 2 if horizon is thin
Texture—loam, silt loam, sandy clay loam, fine sandy loam

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 2 to 6

Texture—loam, silt loam, fine sandy loam; may be stratified; range includes sand and gravel below a depth of 40 inches

Chavies Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Landscape position: Broad stream terraces along the Ohio River
Parent material: Loamy alluvial materials
Slope range: 0 to 15 percent

Taxonomic classification: Coarse-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Chavies fine sandy loam, 0 to 3 percent slopes, in a cultivated field at Ashton, in Mason County, West Virginia; about 0.3 mile northeast of the intersection of State Routes 2 and 41; USGS Apple Grove topographic quadrangle; lat. 38 degrees 37 minutes 08 seconds N. and long. 82 degrees 09 minutes 45 seconds W.

Ap1—0 to 4 inches; dark yellowish brown (10YR 3/4) fine sandy loam; moderate medium and coarse granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Ap2—4 to 12 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak coarse granular and weak medium subangular blocky structure; friable; common fine roots; slightly acid; clear smooth boundary.

Bt1—12 to 23 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—23 to 33 inches; yellowish brown (10YR 5/6) fine sandy loam; common fine faint dark yellowish brown (10YR 4/6) iron concentrations; weak coarse subangular blocky structure; friable; few manganese coatings; common faint yellowish brown (10YR 5/6) clay films on faces of peds; slightly acid; clear wavy boundary.

BC1—33 to 47 inches; yellowish brown (10YR 5/4) loamy fine sand with pockets of strong brown (7.5YR 4/6) fine sandy loam; weak coarse subangular blocky structure; very friable; loose and single grained in pockets of fine sandy loam; moderately acid; clear wavy boundary.

BC2—47 to 64 inches; strong brown (7.5YR 4/6) fine sandy loam with pockets of dark yellowish brown (10YR 4/4) loamy fine sand; weak medium and coarse subangular blocky structure; very friable; loose and single grained in pockets of loamy fine sand; 5 percent rounded coarse fragments; moderately acid; clear wavy boundary.

C—64 to 70 inches; dark yellowish brown (10YR 4/4) sand; single grained; loose; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 65 inches
Reaction: Very strongly acid to neutral in the A horizon and in the upper part of the Bt horizon and very strongly acid to moderately acid in the lower part of the Bt horizon and in the BC and C horizons
Content of rock fragments: 0 to 15 percent in the solum and 0 to 30 percent in the substratum

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 3 to 5; chroma of 2 to 4
Texture—fine sandy loam, sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6
Texture—fine sandy loam, loam

BC horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6
Texture—fine sandy loam, sandy loam, loamy fine sand, fine sand; stratification or pockets of these textures in most pedons

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6
Texture—loamy fine sand, fine sand, sand

Conotton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Landscape position: Loamy terraces along the Ohio River
Parent material: Glacial outwash (fig. 18)
Slope range: 0 to 3 percent

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Conotton gravelly sandy loam, 0 to 3 percent slopes, in a cut of the Valleybrook sand and gravel pit north of Lakin in Mason County, West Virginia; about 0.5 mile north of the intersection of State Routes 62 and 11, about 200 feet east of State Route 62; USGS Cheshire topographic quadrangle; lat. 38 degrees 57 minutes 44 seconds N. and long. 82 degrees 04 minutes 59 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) gravelly sandy loam; weak medium granular structure; very friable; common fine roots; 20 percent rounded rock fragments; strongly acid; clear smooth boundary.

BA—6 to 10 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; weak medium and fine subangular blocky structure; very friable; few fine roots; 25 percent rounded rock fragments; strongly acid; clear wavy boundary.

Bt1—10 to 15 inches; strong brown (7.5YR 4/6) very gravelly sandy loam; weak medium subangular blocky structure; very friable; 40 percent rounded rock fragments; some clay bridging on rock fragments and sand grains; very strongly acid; clear wavy boundary.

Bt2—15 to 24 inches; strong brown (7.5YR 4/6) very gravelly sandy loam; weak medium subangular blocky structure; very friable; 40 percent rounded rock fragments; few thin bands of sand and gravel; some clay bridging on rock fragments and on sand grains; strongly acid; clear wavy boundary.

Bt3—24 to 35 inches; brown (7.5YR 4/4) very gravelly sandy loam; weak medium subangular blocky structure; very friable; 50 percent rounded rock fragments; few thin bands of sand and gravel; few pockets of material showing clay bridging; common clean sand grains; moderately acid; clear wavy boundary.

C—35 to 65 inches; dark yellowish brown (10YR 4/4) very gravelly loamy sand and sand; massive to single grained; loose; 40 percent rounded rock fragments; few thin gravel bands; slightly acid.

Range in Characteristics

Thickness of the solum: 30 to 45 inches; dominantly less than 40 inches in this survey area
Depth to bedrock: More than 65 inches
Reaction: Very strongly acid to slightly acid in the Ap and BA horizons and in the upper part of the Bt horizon and strongly acid to neutral in the lower part of the Bt horizon and in the C horizon
Content of rock fragments: 35 to 60 percent in the control section

Ap horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 2 or 3
Texture—gravelly loam, gravelly sandy loam

BA or E horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 5 or 6; chroma of 3 to 6
Texture—gravelly loam, gravelly sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—very gravelly sandy loam

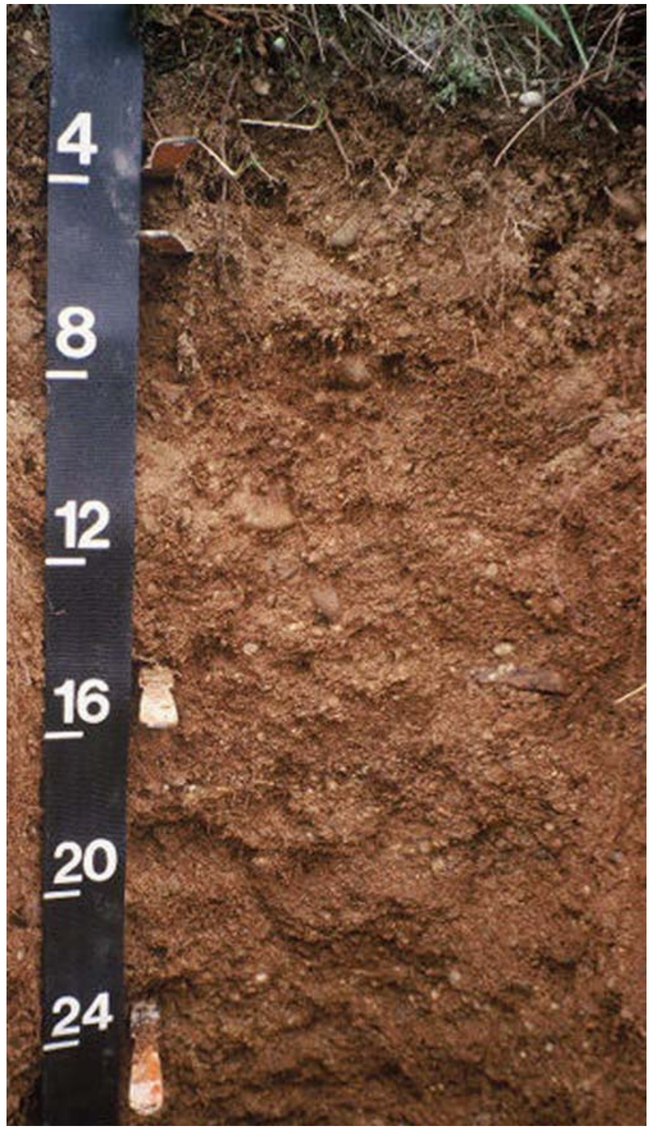

Figure 18.—A profile of a Conotton soil showing the distribution of rounded gravel throughout the soil profile. Depth is marked in inches.

C horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 2 to 4
Texture—gravelly to extremely gravelly analogues of loamy sand and sand

Coolville Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow in the subsoil
Landscape position: Nearly level and gently rolling ridgetops
Parent material: Red and gray shale, siltstone, and some sandstone
Slope range: 0 to 8 percent

Taxonomic classification: Fine, mixed, active, mesic Aquultic Hapludalfs

Typical Pedon

Coolville silt loam, in a wooded area of Coolville and Tilsit soils, 3 to 8 percent slopes, in the Chief Cornstalk Wildlife Management Area in Mason County, West Virginia; about 0.6 mile west-southwest of the intersection of State Routes 40 and 38/3; USGS Arlee topographic quadrangle; lat. 38 degrees 44 minutes 03 seconds N. and long. 82 degrees 03 minutes 03 seconds W.

Oi—0 to 1 inch; partially decomposed leaf, needle, and stick litter.

A—1 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak coarse granular and weak medium subangular blocky structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

E—5 to 11 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; gradual wavy boundary.

Bt1—11 to 18 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

2Bt2—18 to 21 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common distinct clay films on faces of peds; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.

2Bt3—21 to 28 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; many distinct clay films on faces of peds; common fine distinct pinkish gray (7.5YR 6/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) soft masses of iron accumulation; very strongly acid; gradual wavy boundary.

2Btg—28 to 42 inches; light brownish gray (10YR 6/2) clay; weak medium and coarse subangular blocky structure; firm, sticky and plastic; few fine roots; few distinct clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) and common fine yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

2C—42 to 52 inches; mixed yellowish brown (10YR 5/8), gray (2.5Y 6/1), and yellowish red (5YR 4/6) channery silty clay loam; massive; firm; 15 percent fragments of soft siltstone and shale; very strongly acid; gradual wavy boundary.

2Cr—52 inches; soft, light gray siltstone and shale.

Range in Characteristics

Thickness of the solum: 36 to 46 inches

Depth to bedrock: 40 to 60 inches

Reaction: Slightly acid to extremely acid in the A and E horizons, strongly acid to extremely acid in the Bt horizon and in the upper part of the 2Bt horizon, and strongly acid or very strongly acid in the lower part of the 2Bt horizon and in the C horizon

Content of rock fragments: 0 to 5 percent in the A and B horizons, 0 to 15 percent in the 2B horizon, and 0 to 30 percent in the 2C horizon

A horizon:

Color—hue of 10YR; value of 2 to 4; chroma of 1 or 2
Texture—silt loam

Ap or E horizon (if it occurs):

Color—hue of 10YR; value of 4 or 5; chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR to 2.5Y; value of 4 or 5; chroma of 4 to 6
Texture—silt loam, silty clay loam

2Bt and 2Btg horizons:
Color—hue of 2.5YR to 7.5YR; value of 4 to 6; chroma of 2 to 8
Texture—silty clay, clay

2C horizon:
Color—hue of 2.5YR to 7.5YR; value of 4 to 8; chroma of 1 to 8
Texture—silty clay loam, silty clay

Culleoka Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Ridgetops and summits in the northeastern part of Jackson County
Parent material: Residuum derived from interbedded fine grained sandstone, siltstone, shale, and limestone
Slope range: 8 to 35 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic, Ultic Hapludalfs

Typical Pedon

Culleoka channery silt loam, about 0.75 mile northeast of New Derry, in Derry Township, Westmoreland County, Pennsylvania; 2,000 feet south of the intersection of Pennsylvania Routes 1025 and 1012, about 850 feet south-southwest of Route 1012; USGS Derry topographic quadrangle; lat. 40 degrees 21 minutes 25 seconds N. and long. 79 degrees 18 minutes 19 seconds W.

Ap—0 to 10 inches; dark brown (10YR 3/3) channery silt loam; moderate medium granular structure; friable, nonsticky and nonplastic; common very fine and fine roots; 15 percent subangular shale channers; neutral; abrupt smooth boundary.
Bt—10 to 21 inches; strong brown (7.5YR 5/6) channery silt loam; strong medium subangular blocky structure; friable, slightly sticky and slightly plastic; common very fine and fine roots; common distinct clay films on faces of peds; 15 percent subangular shale channers; moderately acid; clear wavy boundary.
BC—21 to 26 inches; strong brown (7.5YR 5/6) and brown (7.5YR 5/4) very channery silt loam; weak fine and medium platy structure; firm, nonsticky and nonplastic; few very fine and fine roots; 40 percent angular shale channers; moderately acid; gradual wavy boundary.
C—26 to 31 inches; brown (7.5YR 5/4) very channery silt loam; massive; firm, nonsticky and nonplastic; 55 percent angular shale channers; slightly acid; gradual wavy boundary.
R—31 inches; highly fractured, soft shale and siltstone in shades of dark brown, olive gray, and dark yellowish brown.

Range in Characteristics

Thickness of the solum: 20 to 37 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, moderately acid or strongly acid in the solum and slightly acid to strongly acid in the substratum
Content of rock fragments: 5 to 25 percent in the A horizon, 15 to 35 percent in the Bt and BC horizons, and 25 to 80 percent in the C horizon

Ap or A horizon:
Color—hue of 10YR or 7.5YR; value of 3 or 4; chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR; value of 5 or 6; chroma of 4 to 6
Texture—loam, silt loam, silty clay loam

BC horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 5 or 6; chroma of 4 to 6
Texture—loam, silt loam

C horizon:
Color—hue of 2.5Y to 7.5YR; value of 5 or 6; chroma of 3 to 6
Texture—loam, silt loam

Duncannon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Dunelike deposits on stream terraces and loess-covered hills along the Ohio River
Parent material: Windblown silt and very fine sand
Slope range: 8 to 35 percent

Taxonomic classification: Coarse-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Duncannon silt loam, in a hayfield in Pleasants County, West Virginia; about 3,200 feet east of the junction of State Routes 2 and 4; USGS Willow Island topographic quadrangle.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium roots; moderately acid; abrupt smooth boundary.
BA—6 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; clear smooth boundary.
Bt1—11 to 30 inches; strong brown (7.5YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.
Bt2—30 to 38 inches; strong brown (7.5YR 5/6) silt loam; weak medium and coarse subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; moderately acid; gradual wavy boundary.
BC—38 to 52 inches; strong brown (7.5YR 5/6) silt loam; weak very coarse prismatic structure; friable; few fine roots; moderately acid; abrupt wavy boundary.
C—52 to 65 inches; yellowish brown (10YR 5/4) fine sandy loam; massive; friable; few fine and medium strong brown (7.5YR 5/8) iron concentrations; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid or strongly acid in the solum and slightly acid to strongly acid in the substratum
Content of rock fragments: 0 to 10 percent shale or sandstone fragments in the BC and C horizons

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 2 to 4
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, very fine sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, very fine sandy loam

BC horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, very fine sandy loam

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 4 to 6
Texture—silt loam, very fine sandy loam

Elk Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: High second bottoms and stream terraces, mainly along the Kanawha River
Parent material: Alluvium washed from the uplands
Slope range: 0 to 8 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Elk silt loam, 0 to 3 percent slopes, rarely flooded, in a cultivated field about 2.0 miles north of Southside, in Mason County, West Virginia; about 0.4 mile northeast of the intersection of U.S. Route 35 and State Route 17/8, about 300 feet north of State Route 17/8; USGS Robertsburg topographic quadrangle; lat. 38 degrees 43 minutes 12 seconds N. and long. 81 degrees 57 minutes 34 seconds W.

Ap1—0 to 8 inches; brown (10YR 4/3) silt loam; moderate medium granular and weak medium subangular blocky structure; friable; few fine roots; slightly acid; clear wavy boundary.
Ap2—8 to 11 inches; brown (10YR 4/3) silt loam with pockets of strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky and moderate medium granular structure; friable; few fine roots; slightly acid; clear smooth boundary.
Bt1—11 to 28 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable, slightly sticky; common distinct dark yellowish brown clay films on faces of peds; few small pieces of charcoal; few fine roots; slightly acid; clear wavy boundary.
Bt2—28 to 43 inches; brown (7.5YR 4/4) silty clay loam; weak medium subangular blocky structure; friable, slightly sticky; common distinct brown (7.5YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) manganese coatings on faces of peds; few fine distinct strong brown (7.5YR 5/8) iron concentrations; few fine brown (7.5YR 5/3) iron depletions in lower third of horizon; few fine roots; moderately acid; clear wavy boundary.
Bt3—43 to 52 inches; brown (7.5YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable to firm; common distinct brown (7.5YR 4/4)

clay films on faces of peds; common medium black (10YR 2/1) manganese coatings on faces of peds; few pockets of brown (10YR 4/3) material; common fine faint strong brown (7.5YR 5/6) iron concentrations surrounding brown (7.5YR 5/3) iron depletions; strongly acid; clear wavy boundary.

BC—52 to 58 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; common medium black (10YR 2/1) manganese coatings on faces of peds; few medium distinct strong brown (7.5YR 5/6) and brown (7.5YR 5/3) iron concentrations and few fine faint brown (7.5YR 5/2) iron depletions; strongly acid; gradual wavy boundary.

C—58 to 65+ inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; common fine distinct strong brown (7.5YR 5/6) iron concentrations and common fine distinct brown (7.5YR 5/3) iron depletions; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral in the Ap horizon and strongly acid to slightly acid in the B and C horizons
Content of rock fragments: 0 to 5 percent in the A and B horizons and 0 to 35 percent in the C horizon

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 4 to 6
Texture—silty clay loam, silt loam

BC horizon (if it occurs):
Color—hue of 10YR; value of 4 or 5; chroma of 4 to 6
Texture—silt loam, silty clay loam

C horizon:
Color—hue of 5YR to 10YR; value of 4 or 5; chroma of 4 to 8; may include brown and gray redox features
Texture—silt loam, silty clay loam; some pedons stratified with fine sandy loam, loam, clay loam, or silty clay

Gallia Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Sloping high terraces
Parent material: Loamy alluvium of Teays-age origin
Slope range: 8 to 15 percent

Taxonomic classification: Fine-loamy, siliceous, active, mesic Typic Paleudalfs

Typical Pedon

Gallia loam, 8 to 15 percent slopes, in a hayfield about 3.5 miles east-northeast of Point Pleasant, in the Upper Flats area of Mason County, West Virginia; about 2.0 miles south of the intersection of State Routes 15 and 14, about 0.3 mile southwest of State Route 14; USGS Beech Hill topographic quadrangle; lat. 38 degrees 51 minutes 52 seconds N. and long. 82 degrees 04 minutes 59 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; many fine and very fine roots; strongly acid; clear smooth boundary.

BA—4 to 9 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; common very fine roots; 5 percent rounded quartz pebbles; strongly acid; clear wavy boundary.

Bt1—9 to 15 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common very fine and few fine roots; few distinct reddish brown (5YR 4/4) clay skins on faces of peds; 5 percent rounded quartz pebbles; very strongly acid; clear wavy boundary.

Bt2—15 to 28 inches; yellowish red (5YR 4/6) loam; moderate medium subangular blocky structure; friable; common very fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; few distinct strong brown (7.5YR 4/6) skeletans on faces of peds; 2 percent rounded quartz pebbles; very strongly acid; gradual wavy boundary.

Bt3—28 to 44 inches; red (2.5YR 4/6) loam and sandy loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; common distinct yellowish red (7.5YR 4/6) skeletans on faces of peds; 2 percent rounded shale fragments; strongly acid; gradual wavy boundary.

Bt4—44 to 60 inches; red (2.5YR 4/6) loam and sandy loam; weak coarse subangular blocky structure; friable; common distinct yellowish red (5YR 4/4) clay films on faces of peds; many prominent strong brown (10YR 5/6) skeletans on faces of peds; 10 percent highly weathered shale fragments near bottom of horizon; strongly acid; abrupt smooth boundary.

2C—60 to 65 inches; mixed yellowish brown (10YR 5/6) and light gray (10YR 7/1) loam; massive with evidence of bedding planes; friable to firm; 10 percent highly weathered shale fragments; strongly acid; clear smooth boundary.

2Cr—65+ inches; light gray and yellowish brown, weathered siltstone and shale.

Range in Characteristics

Thickness of the solum: 50 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid or strongly acid in the A and B horizons and very strongly acid to moderately acid in the C horizon
Content of rock fragments: 0 to 10 percent in the A horizon, 0 to 20 percent in the B horizon, and 0 to 30 percent in the C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR; value of 3 to 5; chroma of 2 or 3
Texture—loam

BA horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 4 to 6
Texture—loam, silt loam

Bt horizon:
Color—hue of 5YR or 2.5YR with 7.5YR in the upper part of the horizon; value of 3 to 5; chroma of 4 to 8
Texture—loam, clay loam, sandy clay loam; some pockets and lenses of sandy loam

C or 2C horizon:
Color—hue of 2.5YR to 10YR; value of 3 to 5; chroma of 4 to 8
Texture—loam, sandy loam, clay loam; stratified sediments

Gallipolis Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Landscape position: Nearly level and gently sloping river terraces
Parent material: Alluvial sediments
Slope range: 0 to 8 percent
Note: This site is the Official Soil Series Description (OSD) type location for the Gallipolis series.

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon

Gallipolis silt loam, in a field near the Gallia County Airport, about 2.8 miles northeast of Gallipolis, Ohio, on a 2 percent slope; USGS Gallipolis topographic quadrangle; about 2,425 feet south and 2,520 feet west of the northeast corner of sec. 18, T. 3 N., R. 14 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate medium and coarse granular structure; friable; common fine roots; few fine and medium dark stains and concretions; specks of yellowish brown (10YR 5/4) material mixed by deep tillage; slightly acid; abrupt smooth boundary.

Bt1—10 to 16 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine and medium subangular blocky structure; firm; few fine roots; few distinct brown (7.5YR 4/4) clay films and few faint light yellowish brown (10YR 6/4) coatings of silt on faces of peds; common distinct brown (10YR 4/3) coatings of organic material on faces of peds; few fine dark concretions and soft accumulations of iron and manganese oxides; strongly acid; clear wavy boundary.

Bt2—16 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; few distinct pale brown (10YR 6/3) coatings of silt on faces of peds; few fine and medium dark concretions and soft accumulations of iron and manganese oxides; very strongly acid; clear wavy boundary.

Bt3—21 to 30 inches; brown (7.5YR 5/4) silty clay loam; common fine and medium prominent grayish brown (10YR 5/2) iron depletions; moderate medium and coarse subangular blocky structure; firm; few fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; common prominent light brownish gray (10YR 6/2) coatings of silt on faces of peds; few fine and medium dark concretions and soft accumulations of iron and manganese oxides; very strongly acid; gradual wavy boundary.

Bt4—30 to 42 inches; brown (7.5YR 5/4) silty clay loam; common medium and coarse prominent grayish brown (10YR 6/2) iron depletions; moderate coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; few distinct pale brown (10YR 6/3) coatings of silt on faces of prisms; few fine and medium dark concretions and soft accumulations of iron and manganese oxides; very strongly acid; clear wavy boundary.

Bt5—42 to 52 inches; brown (7.5YR 4/4) silty clay loam; common fine and medium prominent grayish brown (10YR 5/2) iron depletions; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; few fine roots; few distinct brown (10YR 5/3) clay films on faces of peds; few fine and medium dark concretions and soft accumulations of iron and manganese oxides; very strongly acid; clear wavy boundary.

BC—52 to 60 inches; brown (7.5YR 4/4) silt loam; few medium and coarse prominent light brownish gray (10YR 6/2) iron depletions; weak coarse and very coarse subangular blocky structure; firm; few fine dark concretions and soft accumulations of iron and manganese oxides; very strongly acid; clear wavy boundary.

C—60 to 74 inches; brown (7.5YR 4/4) silty clay loam; common medium prominent grayish brown (10YR 6/2) iron depletions; massive; firm; few fine dark concretions and soft accumulations of iron and manganese oxides; very strongly acid.

Range in Characteristics

Thickness of the solum: 48 to 80 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral in the A horizon and moderately acid to very strongly acid in the B and C horizons
Content of rock fragments: Commonly none but ranges to as much as 5 percent

Ap horizon:
Color—hue of 10YR; value of 3 to 5 (6 or 7 dry); chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR to 5YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, silty clay loam

BC horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, silty clay loam, loam

C horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, silty clay loam; lenses of loam or fine sandy loam in some pedons

Gilpin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Ridgetops, benches, and side slopes
Parent material: Nearly horizontal interbedded siltstone, fine grained sandstone, and shale
Slope range: 8 to 65 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Gilpin silt loam, in a wooded area on a north-facing slope of Gilpin-Peabody complex, 35 to 65 percent slopes, very stony, in the Chief Cornstalk Wildlife Management Area, about 3 miles southwest of Beech Hill, in Mason County, West Virginia; about 0.5 mile south of the intersection of State Routes 40 and 17/3, about 300 yards southeast of a bend in State Route 40; USGS Arlee topographic quadrangle; lat. 38 degrees 43 minutes 55 seconds N. and long. 82 degrees 02 minutes 23 seconds W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium subangular blocky structure parting to moderate medium granular; very friable;

common very fine, fine, and medium roots; 10 percent sandstone fragments; strongly acid; clear wavy boundary.

BA—3 to 5 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; many fine and medium roots; 10 percent sandstone fragments; strongly acid; clear wavy boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/4) channery silt loam; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; few faint clay films on faces of peds and rock fragments; 25 percent sandstone fragments; strongly acid; clear wavy boundary.

Bt2—13 to 24 inches; strong brown (7.5YR 4/6) channery silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; few distinct clay films on faces of peds; 15 percent sandstone fragments; strongly acid; clear wavy boundary.

Bt3—24 to 30 inches; strong brown (7.5YR 4/6) channery loam; weak medium and coarse subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; 20 percent sandstone fragments; strongly acid; clear wavy boundary.

Cr—30+ inches; yellowish brown, fine grained sandstone and siltstone.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Reaction: Strongly acid to extremely acid throughout
Content of rock fragments: 5 to 40 percent in the A and B horizons

A horizon:
Color—hue of 10YR; value of 3 to 5; chroma of 2 to 4
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 4 to 8
Texture—silt loam, loam

Bt horizon:
Color—hue of 7.5YR to 2.5Y; value of 4 to 6; chroma of 4 to 8
Texture—silt loam, loam, clay loam, silty clay loam

Ginat Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Landscape position: Nearly level and concave second bottoms along the Kanawha River
Parent material: Alluvium
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Endoaqualfs

Typical Pedon

Ginat silt loam, 0 to 3 percent slopes, rarely flooded, in a pastured area about 5 miles southeast of Point Pleasant, in Mason County, West Virginia; about 0.5 mile northeast of the intersection of U.S. Route 35 and State Route 17/2; USGS Beech Hill topographic quadrangle; lat. 38 degrees 47 minutes 32 seconds N. and long. 82 degrees 03 minutes 03 seconds W.

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak coarse granular and weak fine subangular blocky structure; friable; common fine and very fine roots; neutral; clear smooth boundary.

Ap2—5 to 9 inches; grayish brown (10YR 5/2) silt loam; few fine distinct strong brown (10YR 5/6) iron concentrations; weak medium and fine subangular blocky structure; friable; few fine and very fine roots; common fine strong brown (7.5YR 4/6) oxidized root channels; common manganese concretions; neutral; clear smooth boundary.

Btg1—9 to 17 inches; light brownish gray (10YR 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) iron concentrations; moderate coarse subangular blocky and prismatic structure; firm; few fine and very fine roots along faces of peds; few distinct clay films on faces of peds; common medium black (10YR 2/1) manganese coatings; strongly acid; gradual wavy boundary.

Btg2—17 to 28 inches; light brownish gray (10YR 6/2) silty clay loam; common distinct yellowish brown and strong brown (7.5YR 4/6) iron concentrations; moderate coarse subangular and prismatic structure; friable to firm; few fine and very fine roots along faces of peds; common distinct clay films along faces of peds; common medium black (10YR 2/1) manganese coatings; strongly acid; gradual wavy boundary.

Btg3—28 to 35 inches; light brownish gray (10YR 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) iron concentrations; moderate medium and coarse subangular blocky structure; friable; few very fine roots; few faint clay films on faces of peds; few silt flows in pockets and in root channels; common medium black (10YR 2/1) manganese concretions; strongly acid; clear smooth boundary.

Btg4—35 to 48 inches; light brownish gray (10YR 6/2) silty clay loam; common coarse distinct yellowish brown (10YR 5/6) and light yellowish brown iron concentrations; weak coarse and medium subangular blocky structure; friable; few very fine roots along faces of peds; common faint clay films and silt flows in pockets and along faces of peds; common medium black (10YR 2/1) manganese concretions; strongly acid; gradual smooth boundary.

Btg5—48 to 62 inches; light yellowish gray (10YR 6/2) silty clay loam; many coarse distinct yellowish brown (10YR 5/6) and common coarse distinct light yellowish brown (10YR 6/4) iron concentrations; weak coarse subangular blocky structure; friable; few very fine roots; common faint clay films and silt flows in pockets; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Very strongly acid to moderately acid throughout
Content of rock fragments: Generally none in the control section

Ap horizon:
Color—hue of 10YR; value of 4 to 6; chroma of 1 to 3
Texture—silt loam, silty clay loam

Btg horizon:
Color—hue of 10YR; value of 5 to 7; chroma of 1 to 6
Texture—silty clay loam, silt loam

Glenford Series

Depth class: Very deep
Drainage class: Moderately well drained

Permeability: Moderately slow
Landscape position: Nonflooded terraces along the lower Kanawha River
Parent material: Silty alluvial sediments
Slope range: 3 to 15 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon

Glenford silt loam, in a pastured area in Pleasants County, West Virginia; about 1.75 miles north of the junction of State Route 2 and Middle Island Creek, about 200 feet west of State Route 2; USGS Raven Rock topographic quadrangle.

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; moderate medium granular structure; friable; common fine roots; moderately acid; clear smooth boundary.
Bt1—7 to 16 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—16 to 28 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium and coarse subangular blocky structure; friable; common distinct clay films on faces of peds; common fine dark yellowish brown (10YR 4/6) and brown (7.5YR 5/4) iron concentrations; common fine light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.
Bt3—28 to 55 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium and coarse subangular blocky structure; friable; common distinct clay films on faces of peds; common fine dark yellowish brown (10YR 4/6) and brown (7.5YR 5/4) iron concentrations; common fine light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.
C—55 to 65 inches; yellowish brown (10YR 5/4) silt loam; weak coarse and very coarse platy structure; friable; few medium brown (10YR 5/3) and light brownish gray (10YR 6/2) iron depletions; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid or moderately acid in the A horizon, strongly acid to neutral in the B horizon, and moderately acid to neutral in the C horizon
Content of rock fragments: Generally none in the control section

Ap horizon:
Color—hue of 10YR; value of 4; chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 4 to 6
Texture—silty clay loam, silt loam

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 2 to 8
Texture—silt loam, silty clay loam, loam

Hackers Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: High bottoms and low stream terraces

Parent material: Alluvium derived from interbedded shale, siltstone, and sandstone
Flooding frequency: Rare
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Hackers silt loam, 0 to 3 percent slopes, rarely flooded, in a meadow along Thirteen Mile Creek, about 0.75 mile west of Nat, in Mason County, West Virginia; about 0.4 mile northeast of the intersection of State Routes 35/10 and 65, about 500 feet south of State Route 35/10; USGS Robertsburg topographic quadrangle; lat. 38 degrees 41 minutes 39 seconds N. and long. 81 degrees 54 minutes 35 seconds W.

Ap—0 to 8 inches; dark brown (7.5YR 3/4) silt loam; weak fine and medium granular structure; friable; common very fine and few fine roots; neutral; clear smooth boundary.
Bt1—8 to 15 inches; reddish brown (5YR 4/4) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few faint clay films on faces of peds; slightly acid; clear wavy boundary.
Bt2—15 to 47 inches; yellowish red (5YR 4/6) silty clay loam; friable, slightly sticky; few very fine roots; common distinct clay films on faces of peds; moderately acid; clear wavy boundary.
BC—47 to 55 inches; reddish brown (5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; moderately acid; gradual wavy boundary.
C—55 to 65 inches; reddish brown (5YR 4/4) silt loam; massive; friable; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid to slightly acid
Content of rock fragments: 0 to 5 percent in the A and B horizons and 0 to 30 percent in the C horizon

Ap horizon:
Color—hue of 10YR to 5YR; value of 3 or 4; chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 5YR or 2.5YR; value of 3 to 5; chroma of 3 to 8
Texture—silty clay loam, silt loam

BC horizon (if it occurs):
Color—hue of 5YR; value of 3 or 4; chroma of 4 to 6
Texture—silt loam, loam, silty clay loam

C horizon:
Color—hue of 5YR or 2.5YR; value of 3 or 4; chroma of 3 or 4
Texture—silt loam, loam, silty clay loam

Huntington Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate

Landscape position: Flood plains along the Ohio and Kanawha Rivers, mainly adjacent to the rivers
Parent material: Alluvium washed from the uplands
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Fluventic Hapludolls

Typical Pedon

Huntington silt loam, 0 to 3 percent slopes, occasionally flooded, in a cultivated field south of Point Pleasant, along the Ohio River in Mason County, West Virginia; about 5.0 miles south of the junction of U.S. Route 35 and State Route 2, about 0.5 mile west of State Route 2; USGS Gallipolis topographic quadrangle.

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; very friable; many fine and medium roots; slightly acid; clear wavy boundary.
Bw1—11 to 22 inches; dark brown (10YR 4/3) silty clay loam; weak fine subangular blocky structure; friable; common fine roots; neutral; clear smooth boundary.
Bw2—22 to 31 inches; dark brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct dark brown (10YR 4/2) coatings on faces of peds; moderately acid; clear wavy boundary.
Bw3—31 to 44 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few fine roots; common distinct dark brown (10YR 4/2) coatings on faces of peds; moderately acid; gradual wavy boundary.
Bw4—44 to 60 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse subangular blocky structure; firm; common medium root channels, pores, and wormcasts throughout the horizon; moderately acid; gradual wavy boundary.
C—60 to 65 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; thin lenses of fine sandy loam and loamy fine sand; neutral.

Range in Characteristics

Thickness of the solum: 40 to 60 or more inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to slightly alkaline
Content of rock fragments: 0 to 3 percent in the A and B horizons and 0 to 30 percent in the C horizon

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 2 or 3; chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 or 4 or of 2 if value is 4
Texture—silt loam, silty clay loam

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 or 4 or of 2 if value is 4
Texture—silt loam, fine sandy loam, loam, silty clay loam

Kanawha Series

Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Landscape position: High bottoms and low stream terraces
Parent material: Loamy alluvium washed from the uplands
Slope range: 0 to 3 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Kanawha loam, in a cultivated field along the Guyandotte River in Cabell County, West Virginia; about 0.4 mile south of the Cabell County 4-H Camp, about 0.1 mile east of the Guyandotte River; USGS Barboursville topographic quadrangle.

Ap—0 to 11 inches; dark brown (10YR 4/3) loam; weak medium subangular blocky structure parting to moderate fine and medium granular; friable; many fine and medium roots; neutral; abrupt smooth boundary.
Bt1—11 to 27 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; slightly acid; clear wavy boundary.
Bt2—27 to 35 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; moderately acid; gradual wavy boundary.
BC—35 to 45 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; friable; few fine roots; moderately acid; gradual wavy boundary.
C—45 to 65 inches; yellowish brown (10YR 5/6) loam; massive; friable; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 55 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid or moderately acid in the upper part of the solum and moderately acid or slightly acid in the lower part of the solum and in the C horizon
Content of rock fragments: 0 to 10 percent throughout

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 4; chroma of 3 or 4
Texture—loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 8
Texture—loam, silt loam, clay loam

BC horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 8
Texture—loam, silt loam, clay loam, fine sandy loam

C horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—loam, fine sandy loam, sandy clay loam

Lakin Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid

Landscape position: Sloping dunelike deposits on stream terraces and the adjacent hillsides along the Ohio River
Parent material: Windblown and water-deposited sediments
Slope range: 3 to 25 percent
Note: This site is the Official Soil Series Description (OSD) type location for the Lakin series.

Taxonomic classification: Mixed, mesic Lamellic Udipsamments

Typical Pedon

Lakin loamy fine sand, 3 to 8 percent slopes, in a wooded area about 3.5 miles north of Point Pleasant in Mason County, West Virginia; about 0.7 mile east of the intersection of State Routes 62 and 62/4, along the old TNT patrol road; USGS Cheshire topographic quadrangle; (approximate location) lat. 38 degrees 55 minutes 03 seconds N. and long. 82 degrees 05 minutes 58 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) loamy fine sand; very weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.
E—7 to 11 inches; yellowish brown (10YR 5/4) loamy fine sand; very weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.
E and Bt1—11 to 17 inches; yellowish brown (10YR 5/6) loamy sand; few brown (10YR 4/3) discontinuous lamellae and lumps; single grained in the E part; very weak granular structure and weak clay bridging of sand grains in the Bt part; very friable; strongly acid; clear wavy boundary.
E and Bt2—17 to 60 inches; yellowish brown (10YR 5/4) loamy sand; common thin dark brown (7.5YR 4/4) lamellae and lumps; single grained in the E part; fine sand to fine sandy loam in the Bt part; very weak medium granular structure and clay bridging of sand grains in the Bt part; very friable; strongly acid; gradual wavy boundary.
C—60 to 80 inches; brown (10YR 5/3) medium and fine sand; loose, single grained; common black sand-size grains; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches or more
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to very strongly acid throughout
Content of rock fragments: 0 to 3 percent in the control section

A or Ap horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 3 or 4
Texture—loamy fine sand

E horizon:
Color—hue of 10YR; value of 5 or 6; chroma of 4 to 8
Texture—loamy fine sand, loamy sand, fine sand, sand

E and Bt horizon:
Color—hue of 10YR or 7.5YR in the E part and 10YR to 5YR in the Bt part; value—4 to 6 in the E part and 3 to 5 in the Bt part; chroma—4 to 6 in the E part and 3 to 6 in the Bt part
Texture—loamy fine sand, loamy sand, fine sand in the E part; loamy fine sand, loamy sand, sandy loam, fine sandy loam in the Bt part

Lamellae (fig. 19)—1/8 to 3/4 inch thick with a combined thickness of 1 inch or less in the E and Bt1 horizon; 1/4 inch to 1 1/2 inches thick with a combined thickness of 5 1/2 inches or less in the E and Bt2 horizon; combined thickness of the Bt horizon less than 6 inches in the control section

C horizon:
Color—hue of 10YR or 7.5YR; value of 4 or 5; chroma of 3 or 4
Texture—loamy sand, loamy fine sand, sand

Figure 19.—A closeup of a Lakin soil showing bands of lamellae in the E and Bt horizon.

Lily Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Steeply sloping ridgetops
Parent material: Medium grained and fine grained sandstone
Slope range: 25 to 35 percent

Taxonomic classification: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Lily fine sandy loam, 25 to 35 percent slopes, in a wooded area on a southwest-facing slope in the Chief Cornstalk Wildlife Management Area in Mason County, West Virginia; about 1 mile west of the intersection of State Routes 27 and 74, about 0.2 mile north of State Route 74; USGS Arlee topographic quadrangle; lat. 38 degrees 40 minutes 59 seconds N. and long. 82 degrees 05 minutes 12 seconds W.

Oe—0 to 1 inch; partially decomposed leaf litter.
A—1 to 6 inches; brown (10YR 4/3) fine sandy loam; weak medium granular structure; very friable; common very fine, fine, and medium roots; a few pockets of BA material; 5 percent sandstone rock fragments; strongly acid; clear wavy boundary.
BA—6 to 11 inches; brownish yellow (10YR 6/6) fine sandy loam; weak medium subangular blocky structure; very friable; common very fine and fine and few medium roots; strongly acid; clear wavy boundary.

Bt1—11 to 19 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films in root channels; 5 percent yellowish red (5YR 4/6), highly weathered sandstone rock fragments; very strongly acid; clear wavy boundary.

Bt2—19 to 25 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; common faint clay films in root channels; 5 percent sandstone rock fragments; very strongly acid; clear wavy boundary.

C—25 to 28 inches; yellowish brown (10YR 5/6) channery fine sandy loam; massive; few fine roots; 30 percent weathered sandstone rock fragments; common fine manganese coatings on some fragments; very strongly acid; clear wavy boundary.

Cr—28 inches; yellow, soft sandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Strongly acid to extremely acid
Content of rock fragments: 0 to 30 percent in the A and B horizons and 0 to 35 percent in the C horizon

A horizon:
Color—hue of 10YR or 7.5YR; value of 4 to 6; chroma of 2 to 4
Texture—fine sandy loam

BA horizon (if it occurs):
Color—hue of 10YR or 7.5YR; value of 4 to 6; chroma of 1 to 8
Texture—loam, fine sandy loam, sandy loam

Bt horizon:
Color—hue of 10YR to 5YR; value of 4 to 6; chroma of 4 to 8
Texture—loam, sandy clay loam, clay loam

C horizon:
Color—hue of 10YR to 2.5YR; value of 4 to 6; chroma of 4 to 8
Texture—sandy loam, fine sandy loam, loam, loamy sand

Lindside Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: Flood plains along the Ohio and Kanawha Rivers and downstream along the larger tributaries
Parent material: Alluvial materials washed from the uplands
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon

Lindside silt loam, 0 to 3 percent slopes, rarely flooded, in a cultivated field along the Kanawha River in Mason County, West Virginia; about 0.75 mile east of Point Pleasant, along State Route 62; USGS Beech Hill topographic quadrangle.

Ap—0 to 11 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; very friable; strongly acid; abrupt smooth boundary.

BA—11 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; common dark brown (10YR 3/3) stains on faces of peds; strongly acid; gradual wavy boundary.

Bw—20 to 42 inches; brown (7.5YR 4/4) silt loam; moderate coarse subangular blocky structure; firm; common fine grayish brown (10YR 5/2) iron depletions; common medium black (10YR 2/1) manganese coatings that increase in number with increasing depth; strongly acid; gradual wavy boundary.

C—42 to 65 inches; brown (7.5YR 4/4) silty clay loam; massive; friable to firm; many medium and coarse light brownish gray (10YR 6/2) iron depletions; many medium black (10YR 2/1) manganese concretions; moderately acid.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: More than 6 feet
Reaction: Strongly acid to neutral in the solum and moderately acid to neutral in the substratum
Content of rock fragments: 0 to 5 percent within a depth of 40 inches and 0 to 30 percent below a depth of 40 inches

Ap horizon:
Color—hue of 7.5YR or 10YR; value of 3 to 5 (6 or more dry); chroma of 2 or 3
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 7.5YR to 2.5Y; value of 4 or 5; chroma of 3 or 4
Texture—silt loam, silty clay loam; thin strata of very fine sandy loam, fine sandy loam, loam, or clay loam in some pedons

Bw horizon:
Color—hue of 7.5YR to 2.5Y; value of 4 or 5; chroma of 3 or 4 above a depth of 20 inches and of 1 to 4 below a depth of 20 inches
Texture—silt loam, silty clay loam; thin strata of very fine sandy loam, fine sandy loam, loam, or clay loam in some pedons

C horizon:
Color—hue of 7.5YR to 2.5Y; value of 4 to 6; chroma of 1 to 4
Texture—silty clay loam, silt loam, loam; some stratification may be evident

Lobdell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: Nearly level flood plains
Parent material: Loamy alluvial sediments
Slope range: 0 to 3 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon

Lobdell silt loam, in a field near Howells Mills in Cabell County, West Virginia; about 800 yards south of the junction of State Routes 21 and 1; USGS Milton topographic quadrangle.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine and medium granular structure; very friable; many fine and medium roots; neutral; clear smooth boundary.

Bw1—5 to 16 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; very friable; many fine and medium roots; moderately acid; clear wavy boundary.

Bw2—16 to 25 inches; dark yellowish brown (10YR 4/4) loam; common fine and medium light brownish gray (10YR 6/2) iron depletions; common fine yellowish brown (10YR 5/8) iron concentrations; weak medium subangular blocky structure; very friable; common fine roots; moderately acid; clear wavy boundary.

BC—25 to 35 inches; yellowish brown (10YR 4/4) loam; common medium light brownish gray (10YR 6/2) iron depletions; common medium distinct dark yellowish brown (10YR 4/6) iron concentrations; weak coarse subangular blocky structure; very friable; common fine roots; slightly acid; clear wavy boundary.

C—35 to 65 inches; brown (10YR 5/3) stratified loam, silt loam, and sandy loam; common medium distinct light brownish gray (10YR 6/2) iron depletions; common medium distinct yellowish brown (10YR 5/8) iron concentrations; massive; friable; few fine roots; slightly acid.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid to neutral in the A and B horizons and moderately acid to neutral in the C horizon
Content of rock fragments: 0 to 5 percent in the A horizon and 0 to 15 percent in the B, BC, and C horizons

Ap horizon:
Color—hue of 10YR; value of 2 to 4 (or more than 6 if dry); chroma of 1 to 3
Texture—silt loam

Bw horizon:
Color—hue of 2.5Y to 7.5YR; value of 4 or 5; chroma of 3 or 4
Texture—silt loam, loam

BC horizon (if it occurs):
Color—hue of 2.5Y to 7.5YR; value of 4 or 5; chroma of 3 or 4
Texture—silt loam, loam

C horizon:
Color—hue of 10YR or 2.5Y; value of 4 to 6; chroma of 1 to 8
Texture—loam, sandy loam, silt loam; commonly stratified

Lowell Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Ridgetops and summits in the northeastern part of Jackson County
Parent material: Residuum derived from interbedded limestone and shale
Slope range: 8 to 35 percent

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Lowell silty clay loam, near Madison in Sewickley Township, Westmoreland County, Pennsylvania; 1 mile south of Madison on Pennsylvania Route 136, about 1,000 feet southeast of the intersection of Pennsylvania Township Route T528 and Route 136;

USGS Smithton topographic quadrangle; lat. 40 degrees 14 minutes 03 seconds N. and long. 79 degrees 41 minutes 39 seconds W.

Ap—0 to 10 inches; brown (10YR 4/3) silty clay loam; moderate very fine and fine subangular blocky structure; friable, slightly sticky and nonplastic; many fine and medium roots throughout; 2 percent limestone cobbles; neutral; clear smooth boundary.

Bt1—10 to 13 inches; strong brown (7.5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; firm, slightly sticky and nonplastic; common fine and medium roots throughout; few faint reddish yellow (7.5YR 6/6) clay films on lower faces of peds; 2 percent limestone cobbles; neutral; clear wavy boundary.

Bt2—13 to 22 inches; brown (7.5YR 5/4) silty clay; strong medium and coarse subangular blocky structure; very firm, moderately sticky and slightly plastic; common fine roots throughout; few distinct strong brown (7.5YR 5/6) clay films; common coarse platelike very dark gray (10YR 3/1) masses; slightly acid; gradual wavy boundary.

Bt3—22 to 31 inches; reddish yellow (7.5YR 6/6) clay; moderate and strong medium and coarse subangular blocky structure; firm, very sticky and very plastic; common fine roots between peds; common distinct continuous strong brown (7.5YR 5/6) clay films; common medium irregular very dark gray (10YR 3/1) masses; slightly acid; gradual wavy boundary.

Bt4—31 to 46 inches; reddish yellow (7.5YR 6/6) clay; moderate medium and coarse subangular blocky structure; firm, very sticky and very plastic; few fine roots between peds; common prominent continuous strong brown (7.5YR 5/8) clay films; common medium irregular very dark gray (10YR 3/1) masses; neutral; clear wavy boundary.

BC—46 to 57 inches; brown (7.5YR 5/3) stony clay; massive parting to weak medium subangular blocky structure; firm, very sticky and very plastic; common distinct discontinuous reddish gray (5YR 5/2) clay films; 30 percent subangular limestone stones; common medium irregular dark gray (10YR 4/1) masses; neutral; clear wavy boundary.

C—57 to 59 inches; reddish yellow (7.5YR 6/6) very stony silty clay loam; massive; friable, slightly sticky and nonplastic; 35 percent subangular limestone stones; slightly alkaline; abrupt wavy boundary.

R—59 inches; limestone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Moderately acid to neutral in the A and Bt horizons and slightly acid to slightly alkaline in the BC and C horizons
Content of rock fragments: 0 to 20 percent in the A and Bt horizons and 0 to 35 percent in the BC and C horizons

A horizon:
Color—hue of 7.5YR or 10YR; value of 2 to 4; chroma of 2 or 3
Texture—silty clay loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6
Texture—silty clay loam and silty clay in the upper part of the horizon; silty clay and clay in the lower part

BC horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6

Texture—silty clay loam, silty clay, clay

C horizon:
Color—hue of 7.5YR or 10YR or is neutral; value of 4 to 6; chroma of 0 to 6; many pedons mottled in shades of dark grayish brown and gray near the contact with limestone rock fragments or bedrock
Texture—silt loam ranging to clay

McGary Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Landscape position: Nearly level and gently sloping terrace remnants along tributaries of the Ohio River
Parent material: Slackwater alluvium
Slope range: 0 to 8 percent

Taxonomic classification: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon

McGary silt loam, in an area of Shircliff-McGary complex, 3 to 8 percent slopes, in a cultivated field in the McClintic Wildlife Management Area in Mason County, West Virginia; about 1.2 miles east of the intersection of State Routes 62 and 13, about 100 feet north of State Route 13; USGS Cheshire topographic quadrangle; lat. 38 degrees 54 minutes 03 seconds N. and long. 82 degrees 05 minutes 37 seconds W.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; weak coarse granular and weak medium subangular blocky structure; friable; common fine roots; strongly acid; clear smooth boundary.

Bt1—7 to 12 inches; light olive brown (2.5Y 5/4) silty clay loam; many fine distinct light brownish gray (2.5Y 6/2) iron depletions; common fine distinct yellowish brown (10YR 5/6) iron concentrations; weak medium subangular blocky structure; friable to firm; few fine roots; few faint clay films on faces of peds and in root channels; neutral; clear smooth boundary.

2Bt2—12 to 16 inches; yellowish brown (10YR 5/4) silty clay; many medium distinct light brownish gray (10YR 6/2) iron depletions; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) iron concentrations; moderate medium subangular blocky structure; firm; few fine roots; common medium black (10YR 2/1) manganese coatings; common distinct yellowish brown (10YR 5/4) clay films on faces of peds and in root channels; moderately acid; clear wavy boundary.

2Btg1—16 to 25 inches; grayish brown (2.5Y 5/2) silty clay; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) iron concentrations; moderate medium subangular blocky and weak medium prismatic structure; firm; few fine roots; many distinct yellowish brown (10YR 5/4) clay films on faces of peds and in root channels; moderately acid; clear wavy boundary.

2Btg2—25 to 43 inches; grayish brown (2.5Y 5/2) silty clay; common medium distinct dark yellowish brown (10YR 4/4) iron concentrations; common coarse faint gray (2.5Y 5/1) iron depletions; weak coarse subangular blocky and weak medium prismatic structure; firm; few fine roots; common thin grayish brown (2.5Y 5/2) clay films on faces of peds and in root channels; common distinct nodules of calcium carbonate on faces of peds; slightly effervescent; moderately acid; gradual wavy boundary.

2BC—43 to 56 inches; yellowish brown (10YR 5/4) silty clay loam; common medium distinct grayish brown (10YR 5/2) and gray (10YR 5/1) iron depletions; common medium distinct brown (10YR 4/3) iron concentrations; weak coarse prismatic structure; evidence of stratification in ped interiors; friable; few fine calcium carbonate nodules and patches; slightly effervescent; slightly alkaline; gradual wavy boundary.

2C—56 to 80 inches; yellowish brown (10YR 5/4) silty clay loam and silt loam; common medium distinct grayish brown (10YR 5/2) and gray (10YR 5/1) iron depletions; common medium distinct brown (10YR 4/3) iron concentrations; massive with evidence of stratification; friable; common fine calcium carbonate nodules and patches; slightly effervescent; moderately alkaline; gradual wavy boundary.

2Ck—80 to 85 inches; yellowish brown (10YR 5/4) silty clay loam and silt loam; common medium distinct grayish brown (10YR 5/2) and gray (10YR 5/1) iron depletions; common medium distinct brown (10YR 4/3) iron concentrations; massive with evidence of stratification; friable; common fine calcium carbonate nodules; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 38 to 50 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid to neutral in the Ap, Bt, and 2Bt horizons and slightly alkaline or moderately alkaline in the 2BC, 2C, and 2Ck horizons
Content of rock fragments: Generally none throughout the profile

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 1 to 4
Texture—silt loam

Bt, 2Bt, and 2Btg horizons:
Color—hue of 2.5Y or 10YR; value of 4 to 6; chroma of 1 to 6
Texture—silty clay loam, silty clay

2BC horizon (if it occurs):
Color—hue of 2.5Y or 10YR; value of 4 to 6; chroma of 1 to 6
Texture—silty clay loam, silty clay

2C and 2Ck horizons:
Color—hue of 2.5Y or 10YR; value of 4 to 6; chroma of 1 to 6
Texture—silty clay loam or silty clay with strata of silt loam

Melvin Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Landscape position: Flood plains throughout the survey area
Parent material: Alluvial materials washed from the uplands
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Melvin silt loam, in a meadow along the Ohio River in Cabell County, West Virginia; about 40 yards north of State Route 2, about 900 yards west of the Mason County line; USGS Glenwood topographic quadrangle.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak medium granular and subangular blocky structure; very friable; many fine and medium roots; many fine strong brown (7.5YR 5/8) iron concentrations and dark grayish brown (10YR 4/2) iron depletions; moderately acid; clear smooth boundary.

Bg—9 to 27 inches; dark grayish brown (10YR 4/2) silt loam; weak medium and coarse subangular blocky structure; friable; common fine roots; common fine strong brown (7.5YR 5/8) iron concentrations; slightly acid; gradual wavy boundary.

Cg—27 to 65 inches; gray (N 6/0) and grayish brown (10YR 5/2) silty clay loam; massive; friable; many medium and coarse strong brown (7.5YR 5/8) iron concentrations; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral throughout
Content of rock fragments: 0 to 5 percent within a depth of 30 inches and 0 to 30 percent below a depth of 30 inches

Ap horizon:
Color—hue of 10YR to 5Y; value of 4 to 7; chroma of 1 to 4
Texture—silt loam

Bg horizon:
Color—hue of 10YR to 5Y or is neutral; value of 4 to 7; chroma of 0 to 2
Texture—silt loam, silty clay loam

Cg horizon:
Color—hue of 10YR to 5Y or is neutral; value of 4 to 7; chroma of 0 to 2
Texture—silt loam, silty clay loam, loam; stratified below a depth of 40 inches in some pedons

Monongahela Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Landscape position: Old river terraces
Parent material: Stratified river sediments
Slope range: 3 to 8 percent

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Fragiudults

Typical Pedon

Monongahela silt loam, in a meadow near Hurricane in Putnam County, West Virginia; about 0.4 mile southwest of Hurricane Elementary School and about 0.2 mile west of the confluence of an intermittent drain and Hurricane Creek; USGS Scott Depot topographic quadrangle.

Ap—0 to 9 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium granular structure; very friable; many fine and very fine roots; slightly alkaline; abrupt smooth boundary.

BA—9 to 14 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; many fine and very fine roots; slightly alkaline; clear wavy boundary.

Bt—14 to 25 inches; brownish yellow (10YR 6/8) silt loam; weak and moderate medium subangular blocky structure; friable; common fine and very fine roots; few distinct clay films on faces of peds; neutral; clear wavy boundary.

Btx1—25 to 38 inches; yellowish brown (10YR 5/8) silt loam; weak very coarse prismatic structure parting to coarse subangular blocky; very firm and brittle; few distinct grayish brown clay films on faces of peds; common medium black (10YR 2/1) manganese concretions; common fine and medium distinct light gray (10YR 7/2) iron depletions; strongly acid; gradual wavy boundary.

Btx2—38 to 60 inches; brownish yellow (10YR 6/6) silt loam; weak very coarse prismatic structure; very firm and brittle; few distinct clay films on faces of peds; many medium black (10YR 2/1) manganese concretions; common medium and coarse distinct light gray (10YR 7/2) iron depletions; strongly acid; gradual wavy boundary.

C—60 to 72 inches; mixed yellow (10YR 7/6), very pale brown (10YR 7/4), and light gray (10YR 7/2) silt loam; massive; friable; 5 percent coarse fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid or very strongly acid
Content of rock fragments: As much as 10 percent rock fragments in individual horizons

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 3 or 4
Texture—silt loam

BA and Bt horizons:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 4 to 8
Texture—silt loam, silty clay loam

Btx horizon:
Color—hue of 7.5YR or 10YR; value of 5 or 6; chroma of 2 to 8
Texture—silt loam, clay loam

C or 2C horizon:
Color—hue of 7.5YR or 10YR; value of 5 to 7; chroma of 2 to 8
Texture—silt loam, loam, sandy loam, clay loam

Moshannon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Flood plains
Parent material: Mainly reddish material washed from Dunkard geology on uplands and footslopes (fig. 20)
Flooding frequency: Occasional
Slope range: 0 to 3 percent
Note: This site is the Official Soil Series Description (OSD) type location for the Moshannon series.

Taxonomic classification: Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded, in a meadow at Shatto in Jackson County, West Virginia; about 400 feet south of the intersection of State Routes 5/12 and 34/1; USGS Ripley quadrangle; lat. 38 degrees 47 minutes 21 seconds N. and long. 81 degrees 39 minutes 16 seconds W.

Ap—0 to 9 inches; reddish brown (5YR 4/3) silt loam; weak coarse granular structure; friable; common fine and very fine roots; neutral; abrupt smooth boundary.

Bw1—9 to 17 inches; reddish brown (5YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; few fine and very fine roots; slightly acid; clear wavy boundary.

Bw2—17 to 32 inches; reddish brown (5YR 4/4) silt loam; moderate medium and coarse subangular blocky structure; friable; few fine and very fine roots; moderately acid; clear wavy boundary.

Bw3—32 to 53 inches; yellowish red (5YR 4/6) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; moderately acid; abrupt wavy boundary.

C1—53 to 66 inches; reddish brown (5YR 4/3) silt loam; massive; friable; 5 percent shale fragments; few fine pockets of yellowish red (2.5YR 4/6) iron concentrations surrounded by thin manganese coatings (at base of horizon); common fine manganese concentrations; moderately acid; abrupt wavy boundary.

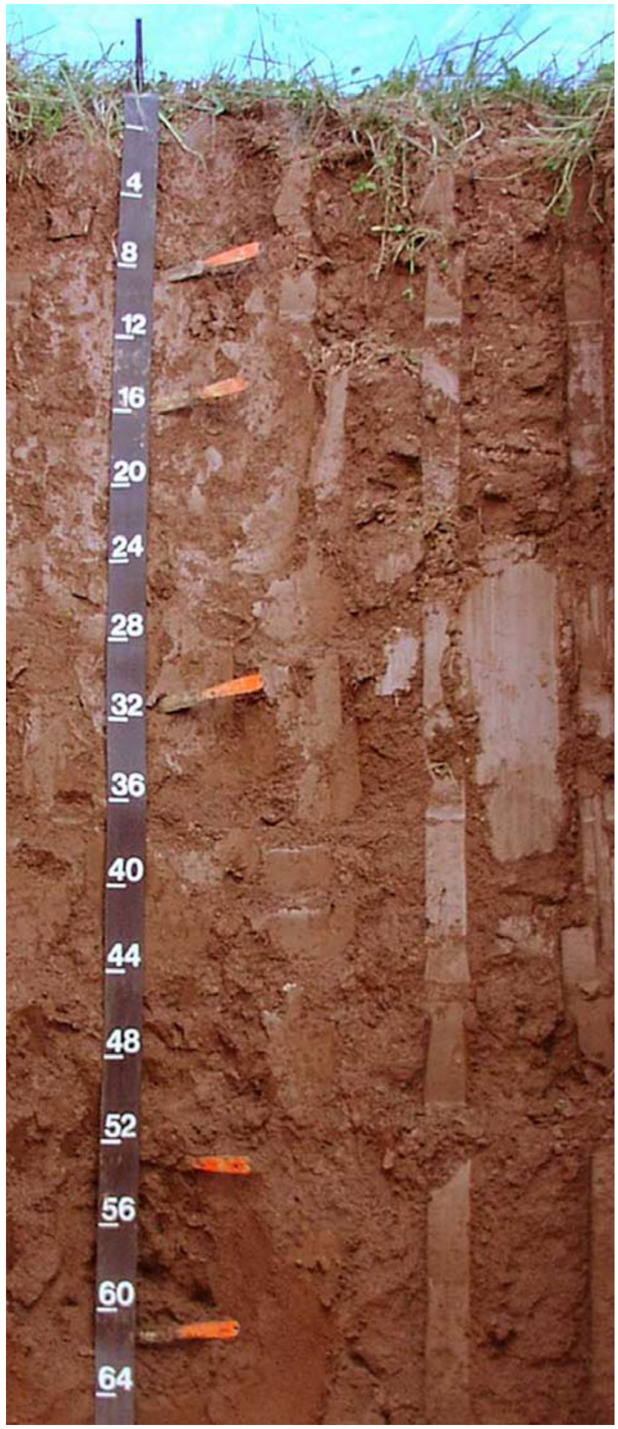

Figure 20.—A profile of a Moshannon soil. Moshannon soils are on flood plains throughout the survey area. Depth is marked in inches.

C2—66 to 80 inches; reddish brown (5YR 4/3) fine sandy loam; massive; very friable; 5 percent shale fragments; slightly acid.

Range in Characteristics

Thickness of the solum: 32 to 48 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral in the Ap horizon, moderately acid or slightly acid in the Bw horizon, and moderately acid to neutral in the C horizon
Content of rock fragments: Less than 5 percent in the solum ranging to 20 percent in the substratum

Ap horizon:
Color—hue of 7.5YR or 5YR; value of 3 or 4; chroma of 3 or 4
Texture—silt loam

Bw horizon:
Color—hue of 5YR or 2.5YR; value of 3 to 6; chroma of 3 to 6
Texture—silt loam, silty clay loam

C horizon:
Color—hue of 5YR or 2.5YR; value of 3 to 5; chroma of 2 to 4
Texture—silt loam, silty clay loam, loam, fine sandy loam

Omulga Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow (fig. 21)
Landscape position: Old gently sloping river terraces
Parent material: Loess and stratified river sediments
Slope range: 0 to 8 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Omulga silt loam, 3 to 8 percent slopes, in a pastured area northeast of Point Pleasant, in the Upper Flats area of Mason County, West Virginia; about 1 mile south of the intersection of State Routes 15 and 14, about 300 feet west of State Route 14; USGS Beech Hill topographic quadrangle; lat. 38 degrees 52 minutes 09 seconds N. and long. 82 degrees 04 minutes 52 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many fine and very fine roots; moderately acid; clear smooth boundary.
Bt1—9 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine and very fine roots; few fine yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.
Bt2—15 to 21 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; common fine and very fine roots; common distinct yellowish brown clay films on faces of peds; few medium faint yellowish brown (10YR 5/6) and common medium distinct brown (10YR 5/3) iron concentrations; strongly acid; clear wavy boundary.
Btx1—21 to 31 inches; yellowish brown (10YR 5/4) silt loam; weak coarse prismatic and moderate medium platy structure; very firm; few very fine roots in vertical seams; few distinct grayish brown (10YR 5/2) clay films on faces of prisms; common coarse distinct grayish brown (10YR 5/2) iron depletions; common

medium distinct strong brown (7.5YR 5/8) iron concentrations; common medium black (10YR 2/1) manganese and iron stains and concretions; very strongly acid; clear smooth boundary.

Btx2—31 to 45 inches; yellowish brown (10YR 5/4) silt loam; moderate coarse prismatic structure; extremely firm; few distinct grayish brown (10YR 5/2) clay films on faces of prisms; common coarse distinct grayish brown (10YR 5/2) iron depletions; common medium distinct strong brown (7.5YR 4/6) iron concentrations; common medium black (10YR 2/1) manganese and iron stains and concretions; very strongly acid; clear wavy boundary.

Bt3—45 to 55 inches; strong brown (7.5YR 5/6) silt loam; weak medium and coarse subangular blocky structure; firm; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; few medium distinct grayish brown (10YR 5/2) iron depletions in vertical streaks; common medium distinct yellowish brown (10YR 5/6) iron concentrations; very strongly acid; clear wavy boundary.

Figure 21.—Profile of an Omulga soil with a fragipan in the subsoil. The fragipan inhibits water movement and root penetration. Depth is marked in inches.

Bt4—55 to 64 inches; strong brown (7.5YR 5/6) silty clay loam; weak coarse subangular blocky structure; firm; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; light brownish gray (10YR 6/2) iron depletions; common medium distinct yellowish brown (10YR 5/6 and 5/8) iron concentrations; very strongly acid; abrupt smooth boundary.

2C—64 to 72 inches; yellowish red (5YR 4/6) fine sandy loam; massive with thin strata; very friable; 5 percent sandstone fragments, including a 1- to 2-inch stone line; strongly acid; abrupt smooth boundary.

3C—72 to 79 inches; yellowish brown (10YR 5/4) silty clay loam; massive; firm; 5 percent siltstone fragments; common fine distinct light brownish gray (10YR 6/2) iron depletions; brownish yellow (10YR 6/8) iron concentrations; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 100 inches

Depth to bedrock: More than 65 inches

Reaction: Strongly acid to neutral in the A horizon, very strongly acid or strongly acid in the upper part of the Bt horizon and in the Btx horizon, and very strongly acid to moderately acid in the lower part of the Bt horizon and in the C horizon

Content of rock fragments: 0 to 5 percent above the Btx horizon, 0 to 10 percent in the Btx horizon, and 0 to 15 percent below the Btx horizon

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 8
Texture—silt loam, silty clay loam

Btx horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 3 to 6
Texture—silt loam, silty clay loam

C or 2C horizon:
Color—hue of 5YR to 10YR; value of 4 to 6; chroma of 2 to 6
Texture—typically stratified sandy loam ranging to clay

Peabody Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow or slow
Landscape position: Very steep side slopes
Parent material: Interbedded siltstones, clay shales, and fine grained sandstone
Slope range: 35 to 65 percent

Taxonomic classification: Fine, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Peabody silt loam, in a wooded area of Gilpin-Peabody complex, 35 to 65 percent slopes, very stony, about 2.5 miles north of Leon in Mason County, West Virginia; about 700 feet northwest of the intersection of State Routes 23 and 46, on a northeast-facing slope; USGS Mount Alto topographic quadrangle; lat. 38 degrees 46 minutes 47 seconds N. and long. 81 degrees 57 minutes 02 seconds W.

Oi—0 to 1 inch; partially decomposed leaf litter.
A—1 to 4 inches; dark brown (7.5YR 3/2) silt loam; weak medium and coarse granular structure; friable; common very fine, fine, and medium roots; 5 percent sandstone fragments; slightly acid; clear smooth boundary.
Bt1—4 to 9 inches; dark reddish brown (5YR 3/4) silty clay; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; 5 percent soft siltstone fragments; few distinct clay films on faces of peds; strongly acid; clear wavy boundary.
Bt2—9 to 17 inches; dark reddish brown (2.5YR 3/4) channery clay; moderate medium subangular blocky structure; firm, sticky and plastic; common very fine, fine, and medium and few fine roots; 15 percent soft siltstone fragments; common distinct clay films on faces of peds and rock fragments; moderately acid; clear wavy boundary.
Bt3—17 to 23 inches; dark reddish brown (5YR 3/4) channery silty clay; weak medium subangular blocky structure; firm, sticky and plastic; few very fine and fine roots; 25 percent soft siltstone fragments; common distinct clay films on faces of peds and rock fragments; moderately acid; clear wavy boundary.
Cr—23+ inches; interbedded yellow siltstone and fine grained sandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Very strongly acid to slightly acid throughout
Content of soft shale fragments: 0 to 15 percent in the A horizon and in the upper part of the Bt horizon and 0 to 25 percent in the lower part of the Bt horizon

A horizon:
Color—hue of 10YR to 5YR; value of 2 to 4; chroma of 2 to 4
Texture—silt loam, silty clay loam

Bt horizon:
Color—hue of 5YR or 2.5YR; value of 3 or 4; chroma of 3 to 6
Texture—silty clay loam, silty clay, clay

Senecaville Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: Flood plains
Parent material: Mainly reddish material washed from Dunkard geology on uplands and footslopes
Flooding frequency: Occasional or rare
Slope range: 0 to 3 percent
Note: This site is the Official Soil Series Description (OSD) type location for the Senecaville series.

Taxonomic classification: Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon

Senecaville silt loam, in a meadow near Wadesville, in Wood County, West Virginia; about 0.3 mile southeast of Wadesville along the North Fork of Lee Creek; USGS Lubeck topographic quadrangle.

Ap—0 to 8 inches; reddish brown (5YR 4/3) silt loam; moderate medium granular structure; very friable; many roots; strongly acid; abrupt smooth boundary.
Bw1—8 to 17 inches; reddish brown (5YR 4/3) silt loam; weak and moderate medium subangular blocky structure; friable; common roots; few fine pores; moderately acid; clear wavy boundary.
Bw2—17 to 32 inches; reddish brown (5YR 4/3) silt loam; weak medium subangular blocky structure; friable or firm; few roots; few fine pores; few fine dark manganese concretions and coatings; common fine yellowish red (5YR 4/6) iron concentrations and pinkish gray (7.5YR 6/2) iron depletions; moderately acid; clear wavy boundary.
C—32 to 60 inches; reddish brown (5YR 4/3) silt loam; thin bands of pinkish gray (7.5YR 6/2) silt and fine sand; massive; firm; common fine dark manganese concretions and coatings; many fine and medium yellowish red (5YR 4/6) iron concentrations and light brownish gray (2.5Y 6/2) iron depletions; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 65 inches
Reaction: Slightly acid to strongly acid throughout

Content of gravel: 0 to 5 percent in the A and B horizons and 0 to 20 percent in the C horizon

A horizon:
Color—hue of 5YR or 7.5YR; value of 4 or 5; chroma of 2 to 4
Texture—silt loam

Bw horizon:
Color—hue of 5YR or 7.5YR; value of 3 to 5; chroma of 3 to 6
Texture—silt loam, silty clay loam

C horizon:
Color—hue of 2.5YR to 7.5YR; value of 2 to 5; chroma of 2 to 6
Texture—silt loam, loam, fine sandy loam; may be stratified

Sensabaugh Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: Narrow flood plains
Parent material: Mixed gravelly or cobbly alluvium
Flooding frequency: Rare or occasional
Slope range: 0 to 8 percent

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded, in a meadow along Fees Branch in Mason County, West Virginia; about 2 miles north of the intersection of State Routes 39 and 80/3, about 300 feet west of State Route 80/3; USGS Mount Olive topographic quadrangle; lat. 38 degrees 35 minutes 36 seconds N. and long. 82 degrees 04 minutes 06 seconds W.

Ap—0 to 7 inches; dark brown (7.5YR 3/3) loam; weak medium granular structure; friable; common very fine and fine roots; 10 percent sandstone fragments; neutral; clear smooth boundary.

Bw1—7 to 22 inches; brown (7.5YR 4/3) gravelly clay loam; weak medium subangular blocky structure; friable; few very fine and fine roots; 20 percent flat, rounded sandstone and shale fragments; slightly acid; clear wavy boundary.

Bw2—22 to 32 inches; brown (7.5YR 4/4) gravelly clay loam; weak medium and coarse subangular blocky structure; friable; few fine and very fine roots; 30 percent flat, rounded sandstone and shale fragments; moderately acid; clear wavy boundary.

C1—32 to 45 inches; brown (7.5YR 4/4) very gravelly sandy loam; massive; very friable; 50 percent mainly rounded sandstone and shale fragments; moderately acid; clear wavy boundary.

C2—45 to 50 inches; strong brown (7.5YR 4/6) gravelly sandy clay loam; massive; friable; 20 percent rounded sandstone and shale fragments; common medium distinct brown (7.5YR 5/3) and strong brown (7.5YR 5/6) iron concentrations; moderately acid; clear wavy boundary.

C3—50 to 65 inches; brown (10YR 5/3) stratified gravelly sandy clay loam and sandy loam; massive; 25 percent rounded sandstone and shale fragments; common mica flakes throughout; common medium distinct dark reddish brown (5YR 3/4) iron concentrations; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 55 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to neutral throughout
Content of rock fragments: 5 to 25 percent in the Ap horizon, 15 to 40 percent in the B horizon, and 15 to 70 in the C horizon

Ap horizon:
Color—hue of 10YR to 5YR; value of 4 or of 3 if horizon is less than 10 inches thick; chroma of 2 to 4
Texture—loam

Bw horizon:
Color—hue of 10YR to 5YR; value of 4 or 5 or of 3 or 4 if hue is 5YR; chroma of 3 to 6 or of 3 or 4 if hue is 5YR
Texture—loam, clay loam, sandy clay loam, silty clay loam, fine sandy loam

C horizon:
Color—hue of 10YR to 5YR; value of 4 or 5 or of 3 or 4 if hue is 5YR; chroma of 4 or 5 or of 3 or 4 if hue is 5YR
Texture—loam, fine sandy loam, silt loam, sandy clay loam

Shircliff Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Landscape position: Gently sloping and strongly sloping terrace remnants along the tributaries of the Ohio River
Parent material: Slackwater alluvium
Slope range: 3 to 15 percent

Taxonomic classification: Fine, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon

Shircliff silt loam, in an area of Shircliff-McGary complex, 3 to 8 percent slopes, in a cultivated field in the McClintic Wildlife Management Area in Mason County, West Virginia; about 1.2 miles east of the intersection of State Routes 62 and 13, about 200 feet south of State Route 13; USGS Cheshire topographic quadrangle; lat. 38 degrees 54 minutes 01 second N. and long. 82 degrees 05 minutes 40 seconds W.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam; weak coarse granular and weak medium subangular blocky structure; friable; common fine roots; moderately acid; clear smooth boundary.
Bt1—8 to 13 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable or firm; few fine roots; few faint clay films on faces of peds; common fine distinct light yellowish brown (10YR 6/4) iron concentrations; moderately acid; clear wavy boundary.
2Bt2—13 to 19 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common fine distinct pale brown (10YR 6/3) iron concentrations; strongly acid; clear wavy boundary.
2Bt3—19 to 29 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; many distinct

yellowish brown (10YR 5/4) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.

2Bt4—29 to 34 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky and weak coarse prismatic structure; ped interiors show weak evidence of varving; firm; common manganese coatings; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common fine faint yellowish brown (10YR 5/8) iron concentrations; few medium distinct grayish brown (10YR 5/2) iron depletions; slightly acid; clear wavy boundary.

2Bt5—34 to 42 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure; ped interiors show common medium distinct light olive brown (2.5Y 5/4) varves; friable; common manganese coatings; few distinct clay films and common distinct silt coatings on faces of peds and on top of layers; common medium distinct strong brown (7.5YR 5/6) iron concentrations; common fine distinct grayish brown (10YR 5/2) iron depletions; neutral; clear wavy boundary.

2BCk1—42 to 47 inches; light olive brown (2.5Y 5/3) silt loam and silty clay loam; weak coarse prismatic structure; ped interiors show weak evidence of varving; friable; few manganese coatings; common silt coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) and few medium distinct brown (7.5YR 4/3) iron concentrations; slightly effervescent; moderately alkaline; gradual wavy boundary.

2BCk2—47 to 65 inches; mixed light olive brown (2.5Y 5/3) and grayish brown (2.5Y 5/2) silt loam; weak coarse prismatic structure; weak evidence of varving in ped interiors; friable; few medium black (10YR 2/1) manganese coatings; few white splotches of calcium carbonate in cracks and old root channels; few yellowish brown calcium carbonate nodules; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 80 or more inches
Depth to bedrock: More than 65 inches
Reaction: Strongly acid to neutral in the Ap horizon, strongly acid or moderately acid in the Bt horizon, strongly acid to neutral in the 2Bt horizon, and slightly alkaline or moderately alkaline in the 2BCk horizon
Content of rock fragments: Generally none throughout the profile

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, silty clay loam

2Bt horizon:
Color—hue of 2.5Y to 7.5YR; value of 4 or 5; chroma of 4 to 6
Texture—silty clay loam, silty clay

2BCk horizon (if it occurs):
Color—hue of 2.5Y or 10YR; value of 4 to 6; chroma of 2 to 4
Texture—silty clay loam, silt loam

Taggart Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow

Landscape position: Low terraces and high second bottoms
Parent material: Mixed alluvial sediments
Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon

Taggart silt loam, along the Ohio River in Salisbury Township, Meigs County, Ohio; about 2,800 feet north and 500 feet east of the southwest corner of fractional sec. 314; USGS Cheshire topographic quadrangle; T. 5 N., R. 13 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, dark brown (10YR 6/3) dry; about 5 percent yellowish brown (10YR 5/4) subsoil material; weak medium and coarse subangular blocky structure parting to moderate medium granular; friable; few medium and many fine roots; moderately acid; abrupt smooth boundary.

BE—8 to 11 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common fine and few medium roots; few distinct dark grayish brown (10YR 4/2) clay films; many prominent grayish brown (10YR 5/2) coatings of silt; many medium and coarse faint grayish brown iron depletions; few fine distinct strong brown (7.5YR 5/6) iron concentrations; few manganese coatings on faces of peds; strongly acid; clear smooth boundary.

Bt1—11 to 19 inches; brown (10YR 5/3) silty clay loam; weak medium and coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine and medium roots; many distinct light brownish gray (2.5Y 5/2) clay films on faces of peds; many medium and coarse distinct iron depletions; common fine distinct strong brown (7.5YR 5/6) and common medium and coarse prominent reddish yellow (7.5YR 6/8) iron concentrations; common manganese coatings on faces of peds; strongly acid; clear wavy boundary.

Bt2—19 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many distinct light brownish gray (2.5Y 6/2) clay skins on faces of peds; many medium and coarse distinct light brownish gray (10YR 6/2) iron depletions; many medium and coarse prominent reddish yellow (7.5YR 5/6) iron concentrations; common manganese coatings on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—29 to 41 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; few fine roots; common distinct light brownish gray (2.5Y 6/2) clay skins on faces of peds; many medium and coarse distinct light brownish gray (2.5Y 6/2) iron depletions; many medium and coarse prominent reddish yellow (7.5YR 6/8) iron concentrations; common manganese coatings on faces of peds; very strongly acid; gradual wavy boundary.

Bt4—41 to 55 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; common distinct light yellowish gray (2.5Y 6/2) clay films on faces of peds; many medium and coarse distinct light brownish gray (2.5Y 6/2) iron depletions; many medium and coarse prominent reddish yellow (7.5YR 6/8) iron concentrations; common manganese coatings on faces of peds; strongly acid; gradual wavy boundary.

BC—55 to 72 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure; firm; common medium and coarse distinct light brownish gray (2.5Y 6/2) iron depletions; common fine and medium prominent reddish yellow (7.5YR 6/8) iron concentrations; common manganese coatings on faces of peds; strongly acid; clear wavy boundary.

C—72 to 80 inches; yellowish brown (10YR 5/4) silty clay loam; massive; firm; common medium and coarse distinct light yellowish gray (2.5Y 6/2) iron depletions; common fine and medium prominent reddish yellow (7.5YR 6/8) iron concentrations; common manganese coatings on faces of peds; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to very strongly acid throughout
Content of rock fragments: Generally no fragments throughout the profile

Ap horizon:
Color—hue of 10YR; value of 4 to 6; chroma of 1 to 3
Texture—silt loam

BE horizon (if it occurs):
Color—hue of 10YR or 2.5Y; value of 5 or 6; chroma of 1 to 4
Texture—silty clay loam, silt loam

Bt horizon:
Color—hue of 10YR or 2.5Y; value of 5 or 6; chroma of 1 to 6
Texture—silty clay loam, silt loam

BC horizon (if it occurs):
Color—hue of 10YR or 2.5Y; value of 4 to 6; chroma of 1 to 6
Texture—silty clay loam, silt loam

C horizon:
Color—hue of 10YR to 5YR; value of 3 to 5; chroma of 1 to 6
Texture—silty clay loam, silt loam, loam; may be stratified with loamy and sandy layers

Tarhollow Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: Loess capped ridgetops adjacent to the Ohio River
Parent material: Residuum derived from sandstones, siltstones, and shales
Slope range: 8 to 25 percent
Note: This site is the Official Soil Series Description (OSD) type location for the Tarhollow series.

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon

Tarhollow silt loam, in a wooded area on a 7 percent slope, about 7 miles south of Adelphi, in Harrison Township in Ross County, Ohio; USGS Hallsville topographic quadrangle; about 930 feet south and 1,740 feet east of the northwest corner of sec. 12, T. 10 N., R. 20 W.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common medium and many fine roots; very strongly acid; clear smooth boundary.

A2—2 to 5 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; many fine and few medium roots; common distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; very strongly acid; clear smooth boundary.

BE—5 to 9 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; few medium and common fine roots; few faint strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt1—9 to 12 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; few medium and common fine roots; common faint strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—12 to 27 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few medium and common fine roots; common faint strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—27 to 31 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common faint strong brown (7.5YR 5/6) clay films on faces of peds; few fine light yellowish brown (10YR 6/4) clay depletions on faces of peds; 1 percent channers; very strongly acid; clear smooth boundary.

2Bt4—31 to 34 inches; strong brown (7.5YR 5/6) channery silty clay; moderate medium subangular blocky structure; firm; few fine roots; common faint strong brown (7.5YR 5/6) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; many medium distinct yellowish red (5YR 5/6) iron concentrations; 20 percent channers; very strongly acid; clear wavy boundary.

2Bt5—34 to 44 inches; strong brown (7.5YR 5/6) channery silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common faint strong brown (7.5YR 5/6) clay films on faces of peds; common distinct pale brown (10YR 6/3) iron depletions on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 20 percent channers; very strongly acid; clear wavy boundary.

2BC—44 to 55 inches; yellowish brown (10YR 5/6) silty clay loam; moderate coarse subangular blocky structure; firm; common medium distinct light brownish gray (2.5YR 6/2) iron depletions in the matrix; 1 percent channers; strongly acid; clear smooth boundary.

2Cr—55 to 60 inches; soft siltstone.

Range in Characteristics

Thickness of the solum: 40 to 72 inches

Depth to bedrock: 40 to 80 inches

Reaction: Very strongly acid to moderately acid in the A and Bt horizons and strongly acid to neutral in the 2Bt and 2BC horizons

Content of rock fragments: 0 to 5 percent in the A, BE, and Bt horizons and 0 to 20 percent in the 2Bt and 2BC horizons

A horizon:

Color—hue of 10YR; value of 4 or 5; chroma of 3 or 4

Texture—silt loam

BE horizon (if it occurs):

Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 or 4

Texture—silt loam

Bt horizon:

Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 4 to 6

Texture—silty clay loam

2Bt horizon:

Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 4 to 6

Texture—silty clay loam, silty clay, clay, clay loam

2BC horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 2 to 6
Texture—silty clay, clay, silty clay loam

Tilsit Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in and below the fragipan
Landscape position: Gently rolling ridgetops
Parent material: Siltstone and fine grained sandstone
Slope range: 3 to 8 percent

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Typic Fragiudults

Typical Pedon

Tilsit silt loam, in an area of Coolville and Tilsit soils, 3 to 8 percent slopes, in a cultivated field in the Chief Cornstalk Wildlife Management Area in Mason County, West Virginia; about 0.25 mile west of the intersection of State Routes 40 and 38/3, about 100 feet south of State Route 38/3; USGS Arlee topographic quadrangle; lat. 38 degrees 44 minutes 29 seconds N. and long. 82 degrees 02 minutes 51 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure parting to weak coarse granular; friable; common fine and very fine roots; strongly acid; clear smooth boundary.

BA—10 to 14 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; few fine and common very fine roots; very strongly acid; clear smooth boundary.

Bt1—14 to 24 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine and common very fine roots; common fine yellowish brown (10YR 5/4) clay films on faces of peds; few fine very dark brown (10YR 2/2) iron and manganese stains; very strongly acid; gradual wavy boundary.

Bt2—24 to 28 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine and very fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common medium faint brown (10YR 5/3) and few fine distinct yellowish brown (10YR 5/8) iron concentrations; very strongly acid; clear wavy boundary.

Btx—28 to 40 inches; yellowish brown (10YR 5/4) silt loam; weak coarse prismatic structure parting to strong coarse and medium angular blocky; firm; few very fine roots along faces of prisms; many prominent brown (10YR 5/3) and grayish brown (10YR 5/2) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions; common medium distinct dark yellowish brown (10YR 4/6) and strong brown (7.5YR 5/8) iron concentrations; few medium prominent yellowish red (5YR 5/6) iron concentrations; very strongly acid; clear wavy boundary.

Bt3—40 to 46 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure with some moderate medium platy structure near bottom of horizon; friable; few very fine roots; common distinct grayish brown (10YR 5/2) and brown (10YR 5/3) clay films on faces of peds; 5 percent rock fragments; common medium distinct gray (10YR 6/1) iron depletions; few medium prominent yellowish red (5YR 5/6) and common medium distinct strong brown (7.5YR 5/8) iron concentrations; very strongly acid; abrupt wavy boundary.

Cr—46 inches; weathered, interbedded brown (7.5YR 5/2 and 5/4) siltstone and fine grained sandstone.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Strongly acid to extremely acid throughout
Content of rock fragments: 0 to 5 percent in the solum

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 2 or 3
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 10YR; value of 4 to 6; chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 to 6; chroma of 4 to 8
Texture—silt loam, silty clay loam

Btx horizon:
Color—hue of 7.5YR or 10YR; value of 5 or 6; chroma of 3 to 6
Texture—silt loam, silty clay loam, loam

Upshur Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Slow
Landscape position: Ridgetops, benches, and side slopes
Parent material: Clay shales interbedded with siltstone
Slope range: 3 to 35 percent

Taxonomic classification: Fine, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Upshur silt loam, in a wooded area of Upshur-Gilpin complex, 25 to 35 percent slopes, near Capehart in Mason County, West Virginia; about 1.3 miles northeast of the intersection of State Routes 35/10 and 60/11, about 0.25 mile north-northeast of State Route 35/10, on an old logging road, on a north-facing slope; USGS Elmwood topographic quadrangle; lat. 38 degrees 43 minutes 36 seconds N. and long. 81 degrees 52 minutes 16 seconds W.

A—0 to 5 inches; dark reddish brown (5YR 3/3) silt loam, dark reddish brown (5YR 5/3) dry; moderate medium and coarse granular structure; friable; common very fine, fine, and medium roots; 10 percent sandstone fragments; strongly acid; clear smooth boundary.

Bt1—5 to 10 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm, sticky and plastic; common very fine, fine, and medium roots; common distinct clay films on faces of peds; 5 percent soft siltstone fragments; strongly acid; clear wavy boundary.

Bt2—10 to 16 inches; dark reddish brown (2.5YR 3/4) silty clay; moderate medium and coarse subangular blocky structure; firm, sticky and plastic; common very fine and fine roots; many distinct clay films on faces of peds; 5 percent soft siltstone fragments; strongly acid; gradual wavy boundary.

Bt3—16 to 37 inches; dark reddish brown (2.5YR 3/4) silty clay; moderate coarse subangular blocky structure; firm, sticky and plastic; common very fine roots and few fine and medium roots; many distinct clay films on faces of peds; 5 percent soft siltstone coarse fragments; strongly acid; clear wavy boundary.

Bt4—37 to 44 inches; dark reddish brown (2.5YR 3/4) channery silty clay; weak medium subangular blocky structure; firm, sticky and plastic; common very fine and fine roots; common distinct clay films on faces of peds; 25 percent soft siltstone and sandstone fragments; strongly acid; abrupt wavy boundary.

Cr—44+ inches; interbedded yellow siltstone, red clay shale, and fine grained sandstone.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid to moderately alkaline in the solum
Content of rock fragments: 0 to 15 percent in the A and Bt1 horizons and 0 to 25 percent in the lower Bt horizons

A horizon:
Color—hue of 7.5YR to 2.5YR; value of 2 to 4; chroma of 2 to 4
Texture—silt loam, silty clay loam

Bt horizon:
Color—hue of 5YR or 2.5YR; value of 3 or 4; chroma of 3 to 6
Texture—silty clay, clay; silty clay loam possible in Bt1 horizon

Vandalia Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Landscape position: Footslopes
Parent material: Colluvium derived from the Gilpin, Upshur, and Peabody soils
Slope range: 8 to 35 percent

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Vandalia silt loam, 15 to 25 percent slopes, in a wooded area in the McClintic Wildlife Management Area in Mason County, West Virginia; about 0.4 mile north of the intersection of State Routes 12/1 and 11/1, on a west-facing slope about 200 yards east of State Route 11/1; USGS Cheshire topographic quadrangle; lat. 38 degrees 55 minutes 18 seconds N. and long. 82 degrees 04 minutes 09 seconds W.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/3) silt loam, very dark grayish brown (5YR 5/3) dry; moderate medium granular structure; friable; common very fine, fine, and medium roots; 5 percent coarse sandstone fragments; strongly acid; clear smooth boundary.

BA—5 to 9 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; few very fine, fine, medium, and coarse roots; 10 percent soft sandstone fragments; strongly acid; clear smooth boundary.

Bt1—9 to 13 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine, fine, medium, and coarse roots; few faint clay films on faces of peds; 10 percent soft sandstone fragments; strongly acid; clear smooth boundary.

Bt2—13 to 20 inches; yellowish red (5YR 4/6) channery silty clay loam; moderate medium subangular blocky structure; firm, sticky and plastic; few very fine, fine, medium, and coarse roots; common distinct clay films on faces of peds; 15 percent rock fragments (10 percent siltstone, 5 percent sandstone); strongly acid; clear wavy boundary.

Bt3—20 to 27 inches; yellowish red (5YR 4/6) channery silty clay; many medium faint reddish brown (5YR 4/4) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; few very fine, fine, and medium roots; common distinct clay films on faces of peds and rock fragments; 20 percent soft siltstone fragments; strongly acid; clear wavy boundary.

Bt4—27 to 41 inches; reddish brown (5YR 4/4) channery silty clay; many medium distinct yellowish red (5YR 4/6) mottles; weak medium and coarse subangular blocky structure; firm, sticky and plastic; few very fine, fine, and medium roots; common distinct clay films on faces of peds and rock fragments; 30 percent soft siltstone fragments; common fine manganese concretions; strongly acid; gradual wavy boundary.

Bt5—41 to 57 inches; reddish brown (5YR 4/4) very channery silty clay loam; many medium distinct strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; firm, sticky and plastic; few very fine, fine, and medium roots; common distinct clay films on faces of peds and rock fragments; 40 percent soft siltstone fragments; common fine manganese concretions; strongly acid; clear wavy boundary.

C—57 to 65 inches; mixed yellowish red (5YR 4/6), strong brown (7.5YR 5/6), and light yellowish brown (2.5YR 6/4) very channery silty clay loam; massive; friable; few fine roots; 50 percent soft siltstone fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Moderately acid to very strongly acid in the A and B horizons and strongly acid to neutral in the C horizon
Content of rock fragments: 5 to 15 percent in the A horizon, 5 to 40 percent in the B horizon, and 5 to 50 percent in the C horizon

Ap horizon:
Color—hue of 10YR to 5YR; value of 3 to 5; chroma of 2 to 4
Texture—silt loam, silty clay loam

BA horizon (if it occurs):
Color—hue of 7.5YR to 2.5YR; value of 3 to 5; chroma of 3 to 6
Texture—silt loam, silty clay loam

Bt horizon:
Color—hue of 7.5YR to 2.5YR; value of 4 or 5 or of 3 in the lower part of the horizon; chroma of 3 to 6
Texture—silty clay loam, silty clay, clay

C horizon:
Color—hue of 5YR to 10R; value of 3 to 6; chroma of 3 to 6
Texture—silty clay loam, silty clay, clay

Wheeling Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate

Landscape position: Nearly level to strongly sloping river terraces
Parent material: Silty or loamy alluvial sediments over sandy and gravelly sediments
Slope range: 0 to 15 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Wheeling silt loam, 0 to 3 percent slopes, in a cultivated field about 1.5 miles north of Point Pleasant in Mason County, West Virginia; about 500 feet southwest of the junction of State Routes 62 and 62/21; USGS Addison topographic quadrangle; lat. 38 degrees 53 minutes 55 seconds N. and long. 82 degrees 07 minutes 41 seconds W.

Ap1—0 to 6 inches; brown (10YR 4/3) silt loam; moderate medium and coarse granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Ap2—6 to 12 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky and moderate coarse granular structure; friable; few very fine roots; slightly acid; clear smooth boundary.

BA—12 to 15 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; slightly acid; clear wavy boundary.

Bt1—15 to 22 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct clay films on faces of peds; few manganese coatings on faces of peds; moderately acid; clear wavy boundary.

Bt2—22 to 34 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; friable; few very fine roots; common distinct clay films on faces of peds; few yellowish brown (10YR 5/8) iron concentrations in streaks at base of horizon; few medium black (10YR 2/1) manganese coatings on faces of peds; moderately acid; clear wavy boundary.

Bt3—34 to 43 inches; yellowish brown (10YR 5/6) loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; common yellowish brown (10YR 5/4) clay films on faces of peds; common fine strong brown (7.5YR 5/8) iron concentrations; common medium black (10YR 2/1) manganese coatings on faces of peds; very strongly acid; abrupt wavy boundary.

2BC—43 to 58 inches; stratified dark yellowish brown (10YR 4/4) and light yellowish brown (10YR 6/4) fine sandy loam (55 percent) and strong brown (7.5YR 4/6) sandy loam (45 percent); weak medium and coarse subangular blocky structure; friable; few very fine roots; clay bridging on sand grains and few faint clay films in pores and on faces of peds; common fine and medium black (10YR 2/1) manganese coatings on faces of peds; very strongly acid; clear smooth boundary.

2C—58 to 80 inches; stratified dark yellowish brown (10YR 4/4) fine sandy loam (40 percent), strong brown (7.5YR 4/6) sandy loam (30 percent), and brownish yellow (10YR 6/6) loamy sand (30 percent); massive; very friable; few medium black (10YR 2/1) manganese coatings on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 65 inches
Reaction: Very strongly acid to slightly acid in the A horizon and very strongly acid to moderately acid in the B and C horizons
Content of rock fragments: Averages 0 to 35 percent; as much as 65 percent gravel in the 2C horizon

A horizon:
Color—hue of 7.5YR or 10YR; value of 3 to 5; chroma of 2 to 4
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—silt loam, loam, clay loam, silty clay loam

BC or 2BC horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—sandy loam, fine sandy loam, loamy sand; may be stratified

C or 2C horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 4 or 5; chroma of 3 to 6
Texture—stratified sand, loamy sand, sandy loam, fine sandy loam, loam

Zoar Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow or slow
Landscape position: Terraces along major tributaries
Parent material: Acid slackwater deposits washed from the uplands
Slope range: 3 to 15 percent

Taxonomic classification: Fine, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon

Zoar silt loam, in a cultivated field along Eighteen Mile Creek in Putnam County, West Virginia; about 0.4 mile northeast of the confluence of Jakes Run and Eighteen Mile Creek, about 100 feet north of an old barn; USGS Winfield topographic quadrangle.

Ap—0 to 9 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.
BA—9 to 13 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; many fine roots; very strongly acid; clear wavy boundary.
Bt1—13 to 20 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine roots; common distinct clay films on faces of peds; few fine and medium distinct pinkish gray (7.5YR 7/2) iron depletions; very strongly acid; clear wavy boundary.
2Bt2—20 to 29 inches; reddish brown (5YR 4/4) clay; weak and moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; many medium and coarse distinct pinkish gray (7.5YR 7/2) iron depletions; very strongly acid; clear wavy boundary.
2Bt3—29 to 39 inches; yellowish red (5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; many medium and coarse distinct pinkish gray (7.5YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

2C—39 to 65 inches; yellowish red (5YR 4/6) silty clay loam; massive; friable or firm; common medium distinct reddish brown (5YR 6/3) and yellowish red (5YR 5/8) iron concentrations; common medium distinct pinkish gray (5YR 6/2) iron depletions; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 65 inches
Reaction: Very strongly acid or strongly acid
Content of rock fragments: Generally none in the solum

Ap horizon:
Color—hue of 10YR; value of 4 or 5; chroma of 3 or 4
Texture—silt loam

BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR; value of 5; chroma of 4 to 6
Texture—silty clay loam

Bt horizon:
Color—hue of 7.5YR or 5YR; value of 4 to 6; chroma of 6 to 8
Texture—silty clay loam, silty clay, clay

C horizon:
Color—hue of 7.5YR or 5YR; value of 4 to 6; chroma of 2 to 8
Texture—silty clay loam, clay loam, silty clay, clay

Formation of the Soils

The origin and development of the soils in Jackson and Mason Counties are explained in this section. The five major factors of soil formation are identified, and their influence on the soils in the soil survey area is described.

Factors of Soil Formation

The soils in Jackson and Mason Counties formed as a result of the five major factors of soil formation—parent material, time, climate, living organisms, and topography. Each factor modifies the effect of the others. Parent material, topography, and time have resulted in the major differences among the soils in the area. Climate and living organisms generally influence soil formation throughout broad areas.

Parent Material, Time, and Climate

The character of the parent material strongly influences the time required for soil formation and the nature of the soil that forms. The soils in Jackson and Mason Counties formed in residuum, colluvium, eolian material, and alluvium. Most of the soils in the survey area formed in material weathered from rocks of the Dunkard and Monongahela Groups. For example, the brown Gilpin soils formed in material weathered from fine grained sandstone, siltstone, and shale, while the redder Upshur soils formed in material weathered from red clay shale.

Residuum is the oldest parent material in the survey area. Clayey material, resistant rock, the slope, and constant erosion have retarded soil formation. Consequently, the profile of some soils that formed in residuum is less well developed than that of some soils formed in younger parent material.

Colluvium is on footslopes, some lower benches, and at the head of many drainageways. It moved downslope from areas of acid and limy soils formed in residuum. The Vandalia soils formed in colluvium derived from the Gilpin, Upshur, and Peabody soils, which are higher on the landscape.

Eolian material has accumulated in some areas along the outer fringes of the Ohio River valley. These areas often have a hummocky or dunelike appearance. The Lakin soils formed in sandy windblown material, while the Duncannon soils formed in silty windblown material. The Tarhollow soils have a cap of silty windblown material underlain by residuum. These eolian materials originated in the Ohio River valley, possibly from materials left in the Midwestern States after the last ice age.

Alluvium, the parent material on terraces and flood plains, was washed from areas of acid and limy soils on uplands. The soil-forming processes have had considerable time to act on the material on terraces, and many additions, losses, and alterations have taken place in these areas. The Omulga, Gallia, Monongahela, and Allegheny soils formed in alluvium on terraces. They have a moderately well developed profile.

The alluvium on flood plains is the youngest parent material in the survey area. Most of this material is well suited to soil formation, but the soil-forming processes have had little time to act. The Moshannon, Chagrin, and Sensabaugh soils formed in alluvium on flood plains. They generally have a weakly developed profile.

Climate is relatively uniform throughout the survey area. As a result, it is not responsible for any major differences among soils throughout this area; however, it is a major factor in the development of soil horizons. A detailed description of the climate is given in the “General Nature of the Survey Area” section.

Living Organisms

Living organisms, including plants, animals, bacteria, and fungi, affect soil formation. The kind and amount of vegetation are generally responsible for the content of the organic matter and the color of the surface layer and are partly responsible for the content of the nutrients. Earthworms and burrowing animals help to keep the soil open and porous. They mix organic material with mineral material by moving soil to the surface. Bacteria and fungi decompose organic matter, thus releasing plant nutrients, and somewhat influence the weathering and decomposition of minerals.

Topography

Topography affects soil formation through its effect on the amount of water moving through the soil, the amount and rate of runoff, and the rate of erosion. Large amounts of water have moved through gently sloping and strongly sloping soils. This movement favors the formation of deep soils that have a moderately well developed or well developed profile. On steep and very steep hillsides, less water moves through the soil as more water runs off the surface. The soil material is washed away almost as rapidly as the soil forms. As a result, the soils on many of the steeper hillsides are shallower over bedrock than soils on the gentler slopes. Soils on the gently sloping or sloping terrace treads and risers generally have the most well developed soil profile. Soils on flood plains, however, are weakly developed, mainly because too little time has elapsed since the parent material was deposited.

Morphology of the Soils

The results of soil-forming processes are evident in the different layers, or horizons, in a soil profile. The profile extends from the surface downward to material that has been little changed by the soil-forming processes. Most soils have three major horizons, called the A, B, and C horizons. Numbers and lowercase letters in the horizon designator indicate subdivisions of these horizons.

The A horizon is the surface layer. It is the layer that has the maximum accumulation of organic matter.

The B horizon underlies the A horizon and is commonly called the subsoil. It is the horizon of the maximum accumulation, or illuviation, of clay, iron, aluminum, or other compounds leached from the surface layer. It commonly has blocky structure and generally is firmer and lighter in color than the A horizon.

The C horizon is below the A and B horizons. It consists of material modified by weathering but is little altered by the soil-forming factors.

Many processes have influenced the formation of horizons in the soils of Jackson and Mason Counties. The more important of these are the accumulation of organic matter, the reduction and transfer of iron, the formation and translocation of clay materials, and the formation of soil structure. These processes are continuous and have been taking place for hundreds of years.

In most of the soils on uplands in the survey area, the B horizon is yellowish brown, reddish brown, or dark reddish brown, mainly because of iron oxides. It has blocky structure and translocated clay materials.

A fragipan has formed in the B horizon of the moderately well drained Omulga, Monongahela, and Tilsit soils. This layer is dense and brittle and is slowly permeable or very slowly permeable. Most fragipans are grayish or are mottled with gray colors.

Moderately well drained, somewhat poorly drained, and poorly drained soils also are grayish in color. These colors are the result of the reduction of iron during soil formation.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

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.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	less than 2.4
Low	2.4-3.2

Moderate	3.2-5.2
High	more than 5.2

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.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Bajada. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

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.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliquivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque. A semicircular, concave, bowllike area that has steep faces primarily resulting from glacial ice and snow abrasion.

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.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Congeliturbate. Soil material disturbed by frost action.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

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.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

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.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

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.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the Earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

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*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine earth. That portion of the soil consisting of particles less than 2 millimeters in diameter. Particles and rock fragments 2 millimeters in diameter or larger are not included.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

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.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (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.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head out. To form a flower head.

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.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

International 1/4-inch rule (Int. 1/4). A formula log rule derived from the mathematical equation used to calculate the volume of a cylinder. The International 1/4-inch rule is generally considered to be the best estimate of the amount of lumber that can be sawn from a tree or a log under optimum conditions.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lamella. An illuvial horizon less than 7.5 cm thick that contains an accumulation of oriented silicate clay on or bridging sand and silt grains (and rock fragments if any are present).

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

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.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

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.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Pebble. A rounded or angular fragment of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. A collection of pebbles is referred to as gravel.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permafrost. Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches

Rapid .... 6.0 to 20 inches
Very rapid .... more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
Plastic limit. The moisture content at which a soil changes from semisolid to plastic.
Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.
Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.
Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.
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.
Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
Potential native plant community. See Climax plant community.
Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.
Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.
Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.
Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is

neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

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.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

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:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 to 65 percent

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the Earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil 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.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. 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.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the Earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Ripley in Jackson County and Hogsett Gallipolis Dam in Mason County.)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature 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
JACKSON COUNTY:											
January--	42.1	22.0	32.0	71	-11	47	3.29	1.81	4.66	8	7.7
February-	47.3	24.5	35.9	75	-3	70	3.23	2.14	4.32	7	4.8
March----	57.3	31.6	44.4	84	7	210	3.95	2.45	5.19	8	2.1
April----	67.8	39.4	53.6	89	19	416	3.42	1.89	4.92	8	.7
May------	76.9	49.4	63.2	92	29	716	4.47	2.66	6.14	9	.0
June-----	83.6	58.1	70.8	95	40	925	4.29	2.04	6.38	7	.0
July-----	87.3	62.8	75.0	99	46	1,071	4.84	3.29	6.20	8	.0
August---	85.4	61.1	73.3	97	45	1,012	3.90	2.59	5.13	6	.0
September	79.6	53.9	66.7	95	34	801	3.39	1.60	5.05	6	.0
October--	68.9	41.6	55.3	86	22	471	3.09	1.32	4.65	6	.1
November-	56.8	33.1	45.0	80	13	206	3.56	2.18	4.80	7	.7
December-	46.3	26.4	36.4	72	0	82	3.54	2.05	4.60	7	1.9
Yearly:											
Average-	66.6	42.0	54.3	---	---	---	---	---	---	---	---
Extreme-	---	---	---	99	-14	---	---	---	---	---	---
Total---	---	---	---	---	---	6,028	44.98	35.93	50.75	87	18.1
MASON COUNTY:											
January--	40.8	21.1	30.9	70	-7	38	3.14	1.44	4.82	7	3.7
February-	44.9	23.2	34.1	74	-1	57	2.98	1.52	4.36	6	2.8
March----	55.2	30.7	43.0	82	9	181	3.68	2.22	4.89	8	2.0
April----	66.1	38.9	52.5	88	21	383	3.17	1.80	4.45	7	.0
May------	74.8	48.9	61.9	90	31	669	3.99	2.44	5.46	8	.0
June-----	82.4	58.1	70.2	95	42	906	3.69	2.23	5.18	7	.0
July-----	86.6	62.8	74.7	98	50	1,072	4.53	2.62	6.22	7	.0
August---	85.1	61.6	73.3	97	48	1,031	3.90	2.20	5.50	6	.0
September	78.8	54.5	66.6	93	38	798	2.92	1.43	4.35	5	.0
October--	68.0	42.4	55.2	85	25	473	2.69	1.27	3.91	5	.0
November-	56.3	33.5	44.9	79	16	202	3.10	1.76	4.43	6	.1
December-	45.6	25.7	35.6	70	2	72	3.23	1.97	4.18	7	1.5
Yearly:											
Average-	65.4	41.8	53.6	---	---	---	---	---	---	---	---
Extreme-	---	---	---	98	-11	---	---	---	---	---	---
Total---	---	---	---	---	---	5,882	41.02	35.21	46.07	79	10.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Ripley in Jackson County and Hogsett Gallipolis Dam in Mason County.)

Probability	Temperature		
	24^{o} F or lower	28^{o} F or lower	32^{o} F or lower
JACKSON COUNTY:			
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 19	May 1	May 14
2 years in 10 later than--	Apr. 15	Apr. 26	May 9
5 years in 10 later than--	Apr. 6	Apr. 15	Apr. 30
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 14	Oct. 7	Sept. 28
2 years in 10 earlier than--	Oct. 21	Oct. 13	Oct. 3
5 years in 10 earlier than--	Nov. 4	Oct. 24	Oct. 13
MASON COUNTY:			
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 12	Apr. 26	May 13
2 years in 10 later than--	Apr. 7	Apr. 20	May 6
5 years in 10 later than--	Mar. 27	Apr. 10	Apr. 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 28	Oct. 13	Oct. 5
2 years in 10 earlier than--	Nov. 2	Oct. 20	Oct. 10
5 years in 10 earlier than--	Nov. 12	Nov. 1	Oct. 21

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Ripley in Jackson County and Hogsett Gallipolis Dam in Mason County.)

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
JACKSON COUNTY:			
9 years in 10--	182	162	145
8 years in 10--	192	172	152
5 years in 10--	211	191	165
2 years in 10--	229	209	178
1 year in 10--	239	219	184
MASON COUNTY:			
9 years in 10--	204	176	151
8 years in 10--	212	186	161
5 years in 10--	229	206	180
2 years in 10--	246	225	199
1 year in 10--	254	235	209

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

Map symbol	Soil name	Jackson County	Mason County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
AeC	Allegheny loam, 8 to 15 percent slopes	350	200	550	*
AfA	Ashton fine sandy loam, 0 to 3 percent slopes, rarely flooded	150	350	500	*
AfB	Ashton fine sandy loam, 3 to 8 percent slopes, rarely flooded	100	200	300	*
AsA	Ashton silt loam, 0 to 3 percent slopes, rarely flooded	450	2,700	3,150	0.5
AsB	Ashton silt loam, 3 to 8 percent slopes, rarely flooded	170	850	1,020	0.2
AuB	Ashton-Gallipolis-Urban land complex, 0 to 8 percent slopes, rarely flooded	60	300	360	*
CcC	Cedarcreek channery loam, 3 to 15 percent slopes, very stony	0	760	760	0.1
CcE	Cedarcreek channery loam, 15 to 35 percent slopes, very stony	0	145	145	*
CdA	Chagrin loam, 0 to 3 percent slopes, occasionally flooded	25	2,700	2,725	0.5
CfA	Chagrin-Melvin complex, 0 to 3 percent slopes, frequently flooded	525	1,230	1,755	0.3
ChA	Chavies fine sandy loam, 0 to 3 percent slopes	350	550	900	0.2
ChB	Chavies fine sandy loam, 3 to 8 percent slopes	105	200	305	*
ChC	Chavies fine sandy loam, 8 to 15 percent slopes	500	430	930	0.2
CkB	Chavies-Urban land complex, 0 to 8 percent slopes	220	450	670	0.1
CoA	Conotton gravelly sandy loam, 0 to 3 percent slopes	165	330	495	*
CsB	Coolville and Tilsit soils, 3 to 8 percent slopes	4,485	6,350	10,835	1.8
CuD	Culleoka-Lowell complex, 15 to 25 percent slopes	500	0	500	*
CuE	Culleoka-Lowell complex, 25 to 35 percent slopes	425	0	425	*
DuC	Duncannon silt loam, 8 to 15 percent slopes	125	450	575	*
DuD	Duncannon silt loam, 15 to 25 percent slopes	110	380	490	*
DuE	Duncannon silt loam, 25 to 35 percent slopes	100	300	400	*
EkA	Elk silt loam, 0 to 3 percent slopes, rarely flooded	0	1,150	1,150	0.2
EkB	Elk silt loam, 3 to 8 percent slopes, rarely flooded	0	200	200	*
GaC	Gallia loam, 8 to 15 percent slopes	300	2,220	2,520	0.4
GfA	Gallipolis silt loam, 0 to 3 percent slopes	60	650	710	0.1
GfB	Gallipolis silt loam, 3 to 8 percent slopes	40	250	290	*
GgA	Gallipolis silt loam, 0 to 3 percent slopes, rarely flooded	50	2,100	2,150	0.4
GgB	Gallipolis silt loam, 3 to 8 percent slopes, rarely flooded	25	250	275	*
GhB	Gallipolis-Urban land complex, 0 to 8 percent slopes	45	300	345	*
GlF3	Gilpin-Peabody complex, 35 to 65 percent slopes, severely eroded	200	450	650	0.1
GmF	Gilpin-Peabody complex, 35 to 65 percent slopes, very stony	27,490	61,260	88,750	15.1
GoF	Gilpin-Peabody-Rock outcrop complex, 35 to 65 percent slopes, very stony	1,600	4,135	5,735	1.0
GpC	Gilpin-Upshur complex, 8 to 15 percent slopes	2,290	10,215	12,505	2.1
GpD	Gilpin-Upshur complex, 15 to 25 percent slopes	5,125	30,005	35,130	6.0
GpD3	Gilpin-Upshur complex, 15 to 25 percent slopes, severely eroded	250	220	470	*

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

Map symbol	Soil name	Jackson County	Mason County	Total Area	Total Extent
		Acres	Acres	Acres	Pct
GpE	Gilpin-Upshur complex, 25 to 35 percent slopes	6,320	44,905	51,225	8.7
GpE3	Gilpin-Upshur complex, 25 to 35 percent slopes, severely eroded	200	315	515	*
GsA	Ginat silt loam, 0 to 3 percent slopes	100	1,275	1,375	0.2
GtA	Ginat silt loam, 0 to 3 percent slopes, rarely flooded	0	250	250	*
GvA	Ginat silty clay loam, 0 to 3 percent slopes, rarely flooded	20	1,500	1,520	0.3
GxB	Glenford silt loam, 3 to 8 percent slopes	0	275	275	*
GxC	Glenford silt loam, 8 to 15 percent slopes	0	125	125	*
HaA	Hackers silt loam, 0 to 3 percent slopes, rarely flooded	1,300	900	2,200	0.4
HaB	Hackers silt loam, 3 to 8 percent slopes, rarely flooded	270	180	450	*
HoA	Huntington silt loam, 0 to 3 percent slopes, occasionally flooded	570	850	1,420	0.2
HuA	Huntington silt loam, 0 to 3 percent slopes, rarely flooded	0	275	275	*
KnA	Kanawha loam, 0 to 3 percent slopes, rarely flooded	0	130	130	*
LaB	Lakin loamy fine sand, 3 to 8 percent slopes	85	300	385	*
LaC	Lakin loamy fine sand, 8 to 15 percent slopes	130	375	505	*
LaD	Lakin loamy fine sand, 15 to 25 percent slopes	100	200	300	*
LbB	Lakin-Urban land complex, 0 to 8 percent slopes	150	670	820	0.1
Ld	Landfills	75	450	525	*
LlD	Lily fine sandy loam, 15 to 25 percent slopes	220	575	795	0.1
LlE	Lily fine sandy loam, 25 to 35 percent slopes	1,030	1,300	2,330	0.4
LsA	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded	500	1,900	2,400	0.4
LtA	Lindside silt loam, 0 to 3 percent slopes, rarely flooded	0	550	550	*
LvA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	0	3,500	3,500	0.6
LzC	Lowell-Culleoka complex, 8 to 15 percent slopes	350	0	350	*
M-W	Miscellaneous water	800	1,000	1,800	0.3
McA	McGary-Shircliff complex, 0 to 3 percent slopes	450	0	450	*
MdA	Melvin silt loam, 0 to 3 percent slopes, occasionally flooded	505	2,250	2,755	0.5
MeA	Melvin silt loam, 0 to 3 percent slopes, rarely flooded	0	500	500	*
MgB	Monongahela silt loam, 3 to 8 percent slopes	425	150	575	*
MoA	Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded	7,890	2,830	10,720	1.8
OmA	Omulga silt loam, 0 to 3 percent slopes	150	505	655	0.1
OmB	Omulga silt loam, 3 to 8 percent slopes	1,650	3,530	5,180	0.9
PgF	Peabody-Gilpin complex, 35 to 65 percent slopes	49,305	8,480	57,785	9.9
PgF3	Peabody-Gilpin complex, 35 to 65 percent slopes, severely eroded	4,226	870	5,096	0.9
Qu	Quarries, sand and gravel	0	450	450	*
SeA	Senecaville silt loam, 0 to 3 percent slopes, occasionally flooded	1,800	250	2,050	0.3
SfA	Senecaville silt loam, 0 to 3 percent slopes, rarely flooded	700	200	900	0.2
SnA	Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded	3,500	2,350	5,850	1.0
SrB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded	795	985	1,780	0.3

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

Map symbol	Soil name	Jackson County	Mason County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
StC	Shircliff silt loam, 8 to 15 percent slopes	1,200	2,220	3,420	0.6
SxB	Shircliff-McGary complex, 3 to 8 percent slopes	1,395	670	2,065	0.4
TaA	Taggart silt loam, 0 to 3 percent slopes	0	480	480	*
TfA	Taggart silt loam, 0 to 3 percent slopes, rarely flooded	0	300	300	*
ThC	Tarhollow silt loam, 8 to 15 percent slopes	150	490	640	0.1
ThD	Tarhollow silt loam, 15 to 25 percent slopes	70	100	170	*
Ud	Udorthents, smoothed-Urban land complex	4,500	7,000	11,500	2.0
UeB	Upshur silt loam, 3 to 8 percent slopes	1,655	1,295	2,950	0.5
UeC	Upshur silt loam, 8 to 15 percent slopes	20,838	8,375	29,213	5.0
UeD	Upshur silt loam, 15 to 25 percent slopes	8,000	2,030	10,030	1.7
UgC	Upshur-Gilpin complex, 8 to 15 percent slopes	1,050	750	1,800	0.3
UgD	Upshur-Gilpin complex, 15 to 25 percent slopes	34,790	10,925	45,715	7.8
UgD3	Upshur-Gilpin complex, 15 to 25 percent slopes, severely eroded	2,835	1,270	4,105	0.7
UgE	Upshur-Gilpin complex, 25 to 35 percent slopes	60,671	11,335	72,006	12.3
UgE3	Upshur-Gilpin complex, 25 to 35 percent slopes, severely eroded	3,075	1,425	4,500	0.8
VdC	Vandalia silt loam, 8 to 15 percent slopes	165	180	345	*
VdD	Vandalia silt loam, 15 to 25 percent slopes	9,695	2,845	12,540	2.1
VdE	Vandalia silt loam, 25 to 35 percent slopes	9,600	355	9,955	1.7
VsD3	Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded	4,590	3,420	8,010	1.4
VsE3	Vandalia silty clay loam, 25 to 35 percent slopes, severely eroded	1,200	550	1,750	0.3
VtE	Vandalia silt loam, 15 to 35 percent slopes, very stony	155	230	385	*
VxE	Vandalia silt loam, 15 to 35 percent slopes, bouldery	150	250	400	*
W	Water	5,000	8,000	13,000	2.2
WsA	Wheeling silt loam, 0 to 3 percent slopes	175	1,380	1,555	0.3
WsB	Wheeling silt loam, 3 to 8 percent slopes	75	430	505	*
WsC	Wheeling silt loam, 8 to 15 percent slopes	85	440	525	*
WuB	Wheeling-Urban land complex, 0 to 8 percent slopes	175	450	625	0.1
ZoB	Zoar silt loam, 3 to 8 percent slopes	150	200	350	*
ZoC	Zoar silt loam, 8 to 15 percent slopes	150	75	225	*
	Total	301,600	284,900	586,500	100.0

* Less than 0.05 percent. The combined extent of the soils assigned an asterisk in the "Percent" column is less than 2.8 percent of the survey area.

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

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
AeC:								
Allegheny	3e	110	35	2,600	40	4.00	4.00	4.50
AfA:								
Ashton, rarely flooded	1	150	40	2,800	50	5.50	4.50	5.50
AfB:								
Ashton, rarely flooded	2e	145	40	2,600	50	5.50	4.50	5.50
AsA:								
Ashton, rarely flooded	1	170	50	3,200	55	5.50	5.00	5.50
AsB:								
Ashton, rarely flooded	2e	160	45	3,000	50	5.50	5.00	5.50
AuB:								
Ashton, rarely flooded	1	145	40	2,600	50	5.50	4.50	5.50
Gallipolis, rarely flooded	2e	140	40	2,500	45	4.50	4.00	5.00
Urban land	---	---	---	---	---	---	---	---
CcC:								
Cedarcreek	6s	---	---	---	---	---	2.50	3.00
CcE:								
Cedarcreek	7s	---	---	---	---	---	---	3.00
CdA:								
Chagrin, occasionally flooded	2w	125	40	2,500	45	4.50	3.50	5.50
CfA:								
Chagrin, frequently flooded	5w	---	---	---	---	---	3.00	4.50
Melvin, frequently flooded	5w	---	---	---	---	---	2.50	4.00
ChA:								
Chavies	1	145	40	2,600	50	4.50	4.00	5.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
ChB:								
Chavies	2e	135	40	2,500	50	4.50	4.00	5.50
ChC:								
Chavies	3e	125	35	2,200	45	4.50	4.00	5.00
CkB:								
Chavies	2e	135	40	2,500	50	4.50	4.00	5.50
Urban land	---	---	---	---	---	---	---	---
CoA:								
Conotton	3s	90	25	1,800	35	3.50	3.00	3.00
CsB:								
Coolville	2e	110	30	2,300	45	3.50	3.50	4.50
Tilsit	2e	100	35	2,200	45	3.50	3.50	4.50
CuD:								
Culleoka	4e	90	30	2,000	35	3.00	3.00	4.00
Lowell	4e	80	25	2,000	35	3.00	3.00	4.50
CuE:								
Culleoka	6e	---	---	---	---	---	---	4.00
Lowell	6e	---	---	---	---	---	---	4.00
DuC:								
Duncannon	3e	110	30	1,900	35	4.50	3.50	5.00
DuD:								
Duncannon	4e	95	25	1,800	30	4.00	3.00	4.50
DuE:								
Duncannon	6e	---	---	---	---	---	3.00	4.50
EkA:								
Elk, rarely flooded	1	150	45	3,000	50	5.00	4.50	5.50
EkB:								
Elk, rarely flooded	2e	145	40	2,800	50	5.00	4.50	5.50
GaC:								
Gallia	3e	110	35	2,600	40	4.00	4.00	4.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
GfA:								
Gallipolis	2w	150	45	2,700	45	4.50	4.00	5.50
GfB:								
Gallipolis	2e	140	40	2,500	45	4.50	4.00	5.00
GgA:								
Gallipolis, rarely flooded	2w	140	45	2,600	45	4.50	4.50	5.00
GgB:								
Gallipolis, rarely flooded	2e	140	40	2,500	45	4.50	4.00	5.00
GhB:								
Gallipolis	2e	140	40	2,500	45	4.50	4.00	5.00
Urban land	---	---	---	---	---	---	---	---
GlF3:								
Gilpin	7e	---	---	---	---	---	---	---
Peabody	7e	---	---	---	---	---	---	---
GmF:								
Gilpin, very stony	7s	---	---	---	---	---	---	---
Peabody, very stony	7s	---	---	---	---	---	---	---
GoF:								
Gilpin, very stony	7s	---	---	---	---	---	---	---
Peabody, very stony	7s	---	---	---	---	---	---	---
Rock outcrop	---	---	---	---	---	---	---	---
GpC:								
Gilpin	3e	85	30	2,100	35	3.50	3.00	4.50
Upshur	4e	90	30	2,000	35	3.50	3.00	4.50
GpD:								
Gilpin	4e	85	30	1,800	30	3.00	2.50	4.00
Upshur	6e	85	25	1,800	30	3.00	2.50	4.00

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
GpD3:								
Gilpin	6e	---	---	---	---	---	---	3.50
Upshur	7e	---	---	---	---	---	---	3.50
GpE:								
Gilpin	6e	---	---	---	---	---	---	3.50
Upshur	7e	---	---	---	---	---	---	3.50
GpE3:								
Gilpin	7e	---	---	---	---	---	---	---
Upshur	7e	---	---	---	---	---	---	---
GsA:								
Ginat	3w	110	40	---	40	---	3.50	5.00
GtA:								
Ginat, rarely flooded	3w	110	35	---	40	---	3.50	4.50
GvA:								
Ginat, rarely flooded	3w	100	30	---	35	---	3.50	4.00
GxB:								
Glenford	2e	125	40	2,100	40	4.50	4.50	5.00
GxC:								
Glenford	3e	120	35	2,000	35	4.00	4.00	4.00
HaA:								
Hackers, rarely flooded	1	135	40	2,800	50	5.00	4.00	5.50
HaB:								
Hackers, rarely flooded	2e	130	40	2,800	50	5.00	4.00	5.50
HoA:								
Huntington, occasionally flooded	2w	170	50	3,200	55	5.50	4.50	5.50
HuA:								
Huntington, rarely flooded	1	170	50	3,200	55	5.50	4.50	5.50
KnA:								
Kanawha, rarely flooded	1	135	40	3,000	50	5.00	3.50	5.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
LaB:								
Lakin	3s	75	30	1,800	35	3.50	2.50	2.50
LaC:								
Lakin	4s	70	25	1,700	30	3.00	2.00	2.00
LaD:								
Lakin	4s	70	20	1,700	25	3.00	2.00	2.00
LbB:								
Lakin	3s	75	30	1,800	35	3.50	2.50	2.50
Urban land	---	---	---	---	---	---	---	---
Ld:								
Landfills	---	---	---	---	---	---	---	---
LlD:								
Lily	4e	70	25	1,900	30	3.00	2.50	4.00
LlE:								
Lily	6e	---	---	---	---	---	---	3.50
LsA:								
Lindside, occasionally flooded	2w	130	45	2,500	45	4.00	3.50	5.00
LtA:								
Lindside, rarely flooded	2w	130	45	2,500	45	4.00	3.50	5.00
LvA:								
Lobdell, occasionally flooded	2w	120	40	2,400	45	4.00	3.50	5.50
LzC:								
Lowell	3e	85	30	2,000	35	3.50	3.00	4.50
Culleoka	3e	95	30	2,000	35	3.50	3.00	4.00
McA:								
McGary	3w	75	20	---	30	2.50	2.50	4.50
Shircliff	2w	90	30	1,800	35	3.00	2.50	4.00
MdA:								
Melvin, occasionally flooded	3w	110	35	---	30	---	3.50	4.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
MeA:								
Melvin, rarely flooded	3w	110	35	---	40	---	3.50	4.50
MgB:								
Monongahela	2e	105	35	2,500	40	3.50	3.50	4.50
MoA:								
Moshannon, occasionally flooded	2w	125	35	2,500	45	4.50	3.50	5.50
OmA:								
Omulga	2w	110	35	2,400	45	3.50	3.50	4.50
OmB:								
Omulga	2e	105	35	2,500	40	3.50	3.50	4.50
PgF:								
Peabody	7e	---	---	---	---	---	---	---
Gilpin	7e	---	---	---	---	---	---	---
PgF3:								
Peabody	7e	---	---	---	---	---	---	---
Gilpin	7e	---	---	---	---	---	---	---
Qu:								
Quarries, sand and gravel	---	---	---	---	---	---	---	---
SeA:								
Senecaville, occasionally flooded	2w	105	35	2,400	40	4.00	3.50	5.50
SfA:								
Senecaville, rarely flooded	2w	125	40	2,400	45	4.50	3.50	5.50
SnA:								
Sensabaugh, occasionally flooded	2w	110	35	2,300	45	4.00	3.50	5.50
SrB:								
Sensabaugh, rarely flooded	2e	110	35	2,600	45	4.50	3.50	5.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
StC:								
Shircliff	3e	85	30	1,800	30	3.00	2.50	4.00
SxB:								
Shircliff	2e	90	30	1,800	35	3.00	2.50	4.00
McGary	3w	75	25	---	30	2.50	2.50	4.50
TaA:								
Taggart	3w	120	40	2,100	45	4.00	4.00	5.00
TfA:								
Taggart, rarely flooded	3w	120	40	2,100	45	4.00	4.00	5.00
ThC:								
Tarhollow	3e	85	30	2,200	35	4.00	3.50	4.50
ThD:								
Tarhollow	4e	85	30	1,800	30	3.00	3.50	4.00
Ud:								
Udorthents	---	---	---	---	---	---	---	---
Urban land	---	---	---	---	---	---	---	---
UeB:								
Upshur	3e	85	30	2,000	35	4.00	3.00	4.50
UeC:								
Upshur	4e	80	30	2,000	35	4.00	3.00	4.50
UeD:								
Upshur	6e	85	25	1,800	30	3.00	2.50	4.00
UgC:								
Upshur	4e	85	30	2,000	35	3.50	3.00	4.50
Gilpin	3e	90	30	2,100	35	3.50	3.00	4.50
UgD:								
Upshur	6e	85	25	1,800	30	3.00	2.50	4.00
Gilpin	4e	85	30	1,800	30	3.00	2.50	4.00

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
UgD3:								
Upshur	7e	---	---	---	---	---	---	3.50
Gilpin	6e	---	---	---	---	---	---	3.50
UgE:								
Upshur	7e	---	---	---	---	---	---	3.50
Gilpin	6e	---	---	---	---	---	---	3.50
UgE3:								
Upshur	7e	---	---	---	---	---	---	---
Gilpin	7e	---	---	---	---	---	---	---
VdC:								
Vandalia	3e	90	30	2,000	35	4.00	3.00	4.50
VdD:								
Vandalia	4e	85	25	1,800	30	3.50	2.50	4.00
VdE:								
Vandalia	6e	---	---	---	---	---	---	3.50
VsD3:								
Vandalia	6e	---	---	---	---	---	---	3.50
VsE3:								
Vandalia	7e	---	---	---	---	---	---	---
VtE:								
Vandalia, very stony	6s	---	---	---	---	---	---	3.50
VxE:								
Vandalia, bouldery	7s	---	---	---	---	---	---	3.50
WsA:								
Wheeling	1	155	40	3,000	50	5.00	4.00	5.50
WsB:								
Wheeling	2e	150	40	2,900	50	5.00	4.00	5.50
WsC:								
Wheeling	3e	135	35	2,600	45	4.50	4.00	5.50

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Alfalfa hay	Grass-legume hay	Kentucky bluegrass
		Bu	Bu	Lbs	Bu	Tons	Tons	AUM*
WuB:								
Wheeling----------------	1	150	40	2,900	50	5.00	4.00	5.50
Urban land--------------	---	---	---	---	---	---	---	---
ZoB:								
Zoar--------------------	2e	125	35	2,000	40	4.50	4.00	5.00
ZoC:								
Zoar--------------------	3e	120	30	1,900	40	4.00	4.00	4.50

* 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.

Table 6.--Capability Class and Subclass

Capability class	Capability subclass	Acreage
Unclassified	---	168,502
1	---	8,239
2	e	18,806
2	w	27,120
3	e	16,632
3	w	8,576
3	s	1,029
4	e	67,878
4	s	659
5	w	1,228
6	e	101,153
6	s	934
7	e	104,224
7	s	61,519

Table 7.--Prime Farmland and Other Important Farmlands

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland.)

Map symbol	Map unit name
Prime farmland:	
AfA	Ashton fine sandy loam, 0 to 3 percent slopes, rarely flooded
AfB	Ashton fine sandy loam, 3 to 8 percent slopes, rarely flooded
AsA	Ashton silt loam, 0 to 3 percent slopes, rarely flooded
AsB	Ashton silt loam, 3 to 8 percent slopes, rarely flooded
CdA	Chagrin loam, 0 to 3 percent slopes, occasionally flooded
ChA	Chavies fine sandy loam, 0 to 3 percent slopes
ChB	Chavies fine sandy loam, 3 to 8 percent slopes
EkA	Elk silt loam, 0 to 3 percent slopes, rarely flooded
EkB	Elk silt loam, 3 to 8 percent slopes, rarely flooded
GfA	Gallipolis silt loam, 0 to 3 percent slopes
GfB	Gallipolis silt loam, 3 to 8 percent slopes
GgA	Gallipolis silt loam, 0 to 3 percent slopes, rarely flooded
GgB	Gallipolis silt loam, 3 to 8 percent slopes, rarely flooded
GxB	Glenford silt loam, 3 to 8 percent slopes
HaA	Hackers silt loam, 0 to 3 percent slopes, rarely flooded
HaB	Hackers silt loam, 3 to 8 percent slopes, rarely flooded
HoA	Huntington silt loam, 0 to 3 percent slopes, occasionally flooded
HuA	Huntington silt loam, 0 to 3 percent slopes, rarely flooded
KnA	Kanawha loam, 0 to 3 percent slopes, rarely flooded
LsA	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded
LtA	Lindside silt loam, 0 to 3 percent slopes, rarely flooded
LvA	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded
MoA	Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded
OmA	Omulga silt loam, 0 to 3 percent slopes
SeA	Senecaville silt loam, 0 to 3 percent slopes, occasionally flooded
SfA	Senecaville silt loam, 0 to 3 percent slopes, rarely flooded
SnA	Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded
SrB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded
WsA	Wheeling silt loam, 0 to 3 percent slopes
WsB	Wheeling silt loam, 3 to 8 percent slopes
Farmland of statewide importance:	
AeC	Allegheny loam, 8 to 15 percent slopes
ChC	Chavies fine sandy loam, 8 to 15 percent slopes
CoA	Conotton gravelly sandy loam, 0 to 3 percent slopes
CsB	Coolville and Tilsit soils, 3 to 8 percent slopes
CuD	Culleoka-Lowell complex, 15 to 25 percent slopes
DuC	Duncannon silt loam, 8 to 15 percent slopes
DuD	Duncannon silt loam, 15 to 25 percent slopes
GaC	Gallia loam, 8 to 15 percent slopes
GpC	Gilpin-Upshur complex, 8 to 15 percent slopes
GpD	Gilpin-Upshur complex, 15 to 25 percent slopes
GsA	Ginat silt loam, 0 to 3 percent slopes
GtA	Ginat silt loam, 0 to 3 percent slopes, rarely flooded
GvA	Ginat silty clay loam, 0 to 3 percent slopes, rarely flooded
GxC	Glenford silt loam, 8 to 15 percent slopes
LlD	Lily fine sandy loam, 15 to 25 percent slopes
LzC	Lowell-Culleoka complex, 8 to 15 percent slopes
McA	McGary-Shircliff complex, 0 to 3 percent slopes
MdA	Melvin silt loam, 0 to 3 percent slopes, occasionally flooded
MeA	Melvin silt loam, 0 to 3 percent slopes, rarely flooded
MgB	Monongahela silt loam, 3 to 8 percent slopes
OmB	Omulga silt loam, 3 to 8 percent slopes
StC	Shircliff silt loam, 8 to 15 percent slopes
SxB	Shircliff-McGary complex, 3 to 8 percent slopes

Table 7.--Prime Farmland and Other Important Farmlands--Continued

Map symbol	Map unit name
Farmland of statewide importance:	
TaA	Taggart silt loam, 0 to 3 percent slopes
TfA	Taggart silt loam, 0 to 3 percent slopes, rarely flooded
ThC	Tarhollow silt loam, 8 to 15 percent slopes
ThD	Tarhollow silt loam, 15 to 25 percent slopes
UeB	Upshur silt loam, 3 to 8 percent slopes
UeC	Upshur silt loam, 8 to 15 percent slopes
UgC	Upshur-Gilpin complex, 8 to 15 percent slopes
VdC	Vandalia silt loam, 8 to 15 percent slopes
VdD	Vandalia silt loam, 15 to 25 percent slopes
WsC	Wheeling silt loam, 8 to 15 percent slopes
ZoB	Zoar silt loam, 3 to 8 percent slopes
ZoC	Zoar silt loam, 8 to 15 percent slopes
Farmland of local importance:	
LaB	Lakin loamy fine sand, 3 to 8 percent slopes
LaC	Lakin loamy fine sand, 8 to 15 percent slopes
LaD	Lakin loamy fine sand, 15 to 25 percent slopes

Table 8.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 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	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
AeC:					
Allegheny-----------	70	Somewhat limited		Very limited	
		Too acid	0.73	Too acid	1.00
		Slope	0.37	Slope	0.37
AfA:					
Ashton, rarely flooded------------	80	Not limited		Somewhat limited	
				Flooding	0.40
AfB:					
Ashton, rarely flooded------------	80	Not limited		Somewhat limited	
				Flooding	0.40
AsA:					
Ashton, rarely flooded------------	80	Not limited		Somewhat limited	
				Flooding	0.40
AsB:					
Ashton, rarely flooded------------	80	Not limited		Somewhat limited	
				Flooding	0.40
AuB:					
Ashton, rarely flooded------------	35	Not limited		Somewhat limited	
				Flooding	0.40
Gallipolis, rarely flooded------------	35	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Flooding	0.40
		Too acid	0.02	Restricted permeability	0.31
				Too acid	0.07
Urban land----------	25	Not rated		Not rated	
CcC:					
Cedarcreek----------	90	Somewhat limited		Very limited	
		Too acid	0.73	Too acid	1.00
		Cobble content	0.32	Cobble content	0.32
CcE:					
Cedarcreek----------	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.73	Too acid	1.00
		Cobble content	0.32	Cobble content	0.32
CdA:					
Chagrin, occasionally flooded------------	75	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
CfA:					
Chagrin, frequently flooded	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
Melvin, frequently flooded	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00
		Runoff	0.40		
ChA:					
Chavies	80	Somewhat limited		Very limited	
		Too acid	0.50	Too acid	0.99
ChB:					
Chavies	80	Somewhat limited		Very limited	
		Too acid	0.50	Too acid	0.99
ChC:					
Chavies	70	Somewhat limited		Very limited	
		Slope	0.63	Too acid	0.99
		Too acid	0.50	Slope	0.63
CkB:					
Chavies	45	Somewhat limited		Very limited	
		Too acid	0.50	Too acid	0.99
Urban land	35	Not rated		Not rated	
CoA:					
Conotton	75	Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	0.52	Too acid	0.77
		Too acid	0.22	Droughty	0.52
CsB:					
Coolville	50	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Filtering capacity	0.99	Restricted permeability	1.00
		Depth to saturated zone	0.95	Filtering capacity	0.99
		Too acid	0.43	Too acid	0.99
				Depth to saturated zone	0.95
Tilsit	30	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Depth to saturated zone	0.86	Restricted permeability	1.00
		Too acid	0.62	Too acid	1.00
				Depth to saturated zone	0.86
CuD:					
Culleoka	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Depth to bedrock	0.35	Slope	1.00
		Droughty	0.30	Depth to bedrock	0.35
				Droughty	0.30

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
CuD:					
Lowell	40	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	0.41	Slope	1.00
				Restricted permeability	0.31
CuE:					
Culleoka	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Depth to bedrock	0.35	Slope	1.00
		Droughty	0.30	Depth to bedrock	0.35
				Droughty	0.30
Lowell	30	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	0.41	Slope	1.00
				Restricted permeability	0.31
DuC:					
Duncannon	70	Somewhat limited		Somewhat limited	
		Slope	0.63	Too acid	0.67
		Too acid	0.18	Slope	0.63
DuD:					
Duncannon	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.18	Too acid	0.67
DuE:					
Duncannon	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.18	Too acid	0.67
EkA:					
Elk, rarely flooded	65	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.02	Flooding	0.40
				Depth to saturated zone	0.02
EkB:					
Elk, rarely flooded	75	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.02	Flooding	0.40
				Depth to saturated zone	0.02
GaC:					
Gallia	60	Somewhat limited		Very limited	
		Slope	0.37	Low adsorption	1.00
		Too acid	0.08	Slope	0.37
				Too acid	0.31
GfA:					
Gallipolis	80	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Restricted permeability	0.31
		Too acid	0.02	Too acid	0.07

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
GfB:					
Gallipolis----------	80	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Restricted permeability	0.31
		Too acid	0.02	Too acid	0.07
GgA:					
Gallipolis, rarely flooded-----------	75	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Flooding	0.40
		Too acid	0.02	Restricted permeability	0.31
				Too acid	0.07
GgB:					
Gallipolis, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Flooding	0.40
		Too acid	0.02	Restricted permeability	0.31
				Too acid	0.07
GhB:					
Gallipolis----------	45	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.68	Depth to saturated zone	0.68
		Restricted permeability	0.41	Restricted permeability	0.31
		Too acid	0.02	Too acid	0.07
Urban land----------	30	Not rated		Not rated	
GlF3:					
Gilpin--------------	45	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Peabody-------------	20	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
				Droughty	1.00
		Droughty	1.00	Restricted permeability	1.00
		Filtering capacity	0.99		
		Depth to bedrock	0.95	Filtering capacity	0.99
GmF:					
Gilpin, very stony--	45	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
GmF:					
Peabody, very stony-	20	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Droughty	1.00	Droughty	1.00
		Filtering capacity	0.99	Restricted permeability	1.00
		Depth to bedrock	0.95	Filtering capacity	0.99
GoF:					
Gilpin, very stony--	40	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Peabody, very stony-	20	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Droughty	1.00	Droughty	1.00
		Filtering capacity	0.99	Restricted permeability	1.00
		Depth to bedrock	0.95	Filtering capacity	0.99
Rock outcrop--------	10	Not rated		Not rated	
GpC:					
Gilpin--------------	55	Somewhat limited		Very limited	
		Too acid	0.73	Low adsorption	1.00
		Slope	0.63	Too acid	1.00
		Droughty	0.63	Slope	0.63
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Upshur--------------	25	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Slope	0.63	Restricted permeability	1.00
		Runoff	0.40	Too acid	0.77
		Too acid	0.22	Slope	0.63
		Droughty	0.06	Droughty	0.06
GpD:					
Gilpin--------------	55	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Upshur--------------	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
GpD3:					
Gilpin	55	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Upshur	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
GpE:					
Gilpin	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Upshur	20	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
GpE3:					
Gilpin	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Upshur	20	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
GsA:					
Ginat	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.31
		Too acid	0.08		
GtA:					
Ginat, rarely flooded	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Flooding	0.40
		Too acid	0.08	Too acid	0.31

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
GvA:					
Ginat, rarely flooded	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Flooding	0.40
		Too acid	0.08	Too acid	0.31
GxB:					
Glenford	75	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.08	Too acid	0.31
GxC:					
Glenford	75	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slope	0.63	Slope	0.63
		Too acid	0.08	Too acid	0.31
HaA:					
Hackers, rarely flooded	85	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
				Flooding	0.40
HaB:					
Hackers, rarely flooded	90	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
				Flooding	0.40
HoA:					
Huntington, occasionally flooded	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
HuA:					
Huntington, rarely flooded	80	Not limited		Somewhat limited	
				Flooding	0.40
KnA:					
Kanawha, rarely flooded	85	Somewhat limited		Somewhat limited	
		Too acid	0.18	Too acid	0.67
		Low adsorption	0.10	Flooding	0.40
LaB:					
Lakin	75	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
		Too acid	0.32		
LaC:					
Lakin	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Slope	0.63	Too acid	0.91
		Leaching	0.45	Slope	0.63
		Too acid	0.32		

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
LaD:					
Lakin	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
		Too acid	0.32		
LbB:					
Lakin	45	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
		Too acid	0.32		
Urban land	35	Not rated		Not rated	
Ld:					
Landfills	95	Not rated		Not rated	
LlD:					
Lily	75	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Filtering capacity	0.99	Slope	1.00
		Too acid	0.73	Too acid	1.00
		Droughty	0.63	Filtering capacity	0.99
		Depth to bedrock	0.46	Droughty	0.63
LlE:					
Lily	75	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Filtering capacity	0.99	Slope	1.00
		Too acid	0.73	Too acid	1.00
		Droughty	0.63	Filtering capacity	0.99
		Depth to bedrock	0.46	Droughty	0.63
LsA:					
Lindside, occasionally flooded	85	Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	0.95
LtA:					
Lindside, rarely flooded	75	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
				Flooding	0.40
LvA:					
Lobdell, occasionally flooded	85	Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	0.95
		Too acid	0.02	Too acid	0.07
LzC:					
Lowell	50	Somewhat limited		Very limited	
		Restricted permeability	0.41	Low adsorption	1.00
		Slope	0.37	Slope	0.37
				Restricted permeability	0.31

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
LzC:					
Culleoka	35	Somewhat limited		Very limited	
		Slope	0.37	Low adsorption	1.00
		Depth to bedrock	0.35	Slope	0.37
		Droughty	0.30	Depth to bedrock	0.35
				Droughty	0.30
McA:					
McGary	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00
Shircliff	35	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.02	Too acid	0.07
MdA:					
Melvin, occasionally flooded	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00
		Runoff	0.40		
MeA:					
Melvin, rarely flooded	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Flooding	0.40
MgB:					
Monongahela	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Too acid	0.99
		Restricted permeability	0.81	Depth to saturated zone	0.99
		Too acid	0.50	Restricted permeability	0.68
MoA:					
Moshannon, occasionally flooded	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
OmA:					
Omulga	70	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Dense layer	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too acid	0.31
		Too acid	0.08		

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
OmB:					
Omulga	70	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Dense layer	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too acid	0.31
		Too acid	0.08		
PgF:					
Peabody	45	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Droughty	1.00	Droughty	1.00
		Filtering capacity	0.99	Restricted permeability	1.00
		Depth to bedrock	0.95	Filtering capacity	0.99
Gilpin	35	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
PgF3:					
Peabody	45	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Droughty	1.00	Droughty	1.00
		Filtering capacity	0.99	Restricted permeability	1.00
		Depth to bedrock	0.95	Filtering capacity	0.99
Gilpin	35	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
Qu:					
Quarries, sand and gravel	100	Not rated		Not rated	
SeA:					
Senecaville, occasionally flooded	75	Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	0.95
		Too acid	0.11	Too acid	0.42
SfA:					
Senecaville, rarely flooded	70	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Too acid	0.11	Too acid	0.42
				Flooding	0.40

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
SnA:					
Sensabaugh, occasionally flooded	85	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
SrB:					
Sensabaugh, rarely flooded	75	Not limited		Somewhat limited	
				Flooding	0.40
StC:					
Shircliff	75	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slope	0.37	Slope	0.37
		Too acid	0.02	Too acid	0.07
SxB:					
Shircliff	45	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.02	Too acid	0.07
McGary	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00
TaA:					
Taggart	70	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.08	Too acid	0.31
TfA:					
Taggart, rarely flooded	70	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.08	Flooding	0.40
				Too acid	0.31
ThC:					
Tarhollow	75	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Depth to saturated zone	0.68	Restricted permeability	1.00
		Slope	0.37	Too acid	0.77
		Too acid	0.22	Depth to saturated zone	0.68
				Slope	0.37

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
ThD:					
Tarhollow	75	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	0.68	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
				Depth to saturated zone	0.68
Ud:					
Udorthents	50	Not rated		Not rated	
Urban land	30	Not rated		Not rated	
UeB:					
Upshur	75	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
UeC:					
Upshur	75	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Slope	0.63	Restricted permeability	1.00
		Runoff	0.40	Too acid	0.77
		Too acid	0.22	Slope	0.63
		Droughty	0.06	Droughty	0.06
UeD:					
Upshur	75	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
UgC:					
Upshur	65	Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00
		Slope	0.63	Restricted permeability	1.00
		Runoff	0.40	Too acid	0.77
		Too acid	0.22	Slope	0.63
		Droughty	0.06	Droughty	0.06
Gilpin	20	Somewhat limited		Very limited	
		Too acid	0.73	Low adsorption	1.00
		Slope	0.63	Too acid	1.00
		Droughty	0.63	Slope	0.63
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
UgD:					
Upshur	55	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
UgD:					
Gilpin	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
UgD3:					
Upshur	55	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
Gilpin	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
UgE:					
Upshur	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
Gilpin	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
UgE3:					
Upshur	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Restricted permeability	1.00	Slope	1.00
		Runoff	0.40	Restricted permeability	1.00
		Too acid	0.22	Too acid	0.77
		Droughty	0.06	Droughty	0.06
Gilpin	25	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Too acid	0.73	Slope	1.00
		Droughty	0.63	Too acid	1.00
		Depth to bedrock	0.46	Droughty	0.63
				Depth to bedrock	0.46
VdC:					
Vandalia	75	Somewhat limited		Somewhat limited	
		Restricted permeability	0.81	Too acid	0.91
		Slope	0.63	Restricted permeability	0.68
		Runoff	0.40	Slope	0.63
		Too acid	0.32		

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
VdD:					
Vandalia------------	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
VdE:					
Vandalia------------	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
VsD3:					
Vandalia------------	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
VsE3:					
Vandalia------------	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
VtE:					
Vandalia, very stony	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
VxE:					
Vandalia, bouldery--	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.81	Too acid	0.91
		Runoff	0.40	Restricted permeability	0.68
		Too acid	0.32		
WsA:					
Wheeling------------	80	Very limited		Very limited	
		Filtering capacity capacity	0.99	Filtering capacity capacity	0.99
		Too acid	0.11	Too acid	0.42
WsB:					
Wheeling------------	85	Very limited		Very limited	
		Filtering capacity capacity	0.99	Filtering capacity capacity	0.99
		Too acid	0.11	Too acid	0.42

Table 8.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
WsC:					
Wheeling------------	70	Very limited		Very limited	
		Filtering capacity capacity	0.99	Filtering capacity capacity	0.99
		Slope	0.63	Slope	0.63
		Too acid	0.11	Too acid	0.42
WuB:					
Wheeling------------	45	Very limited		Very limited	
		Filtering capacity capacity	0.99	Filtering capacity capacity	0.99
		Too acid	0.11	Too acid	0.42
Urban land----------	35	Not rated		Not rated	
ZoB:					
Zoar----------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.99	Too acid	0.99
		Too acid	0.50	Depth to saturated zone	0.99
ZoC:					
Zoar----------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.99	Too acid	0.99
		Too acid	0.50	Depth to saturated zone	0.99
		Slope	0.37	Slope	0.37

Table 9.--Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
AeC:				
Allegheny	northern red oak	80	62	250
	yellow-poplar	90	90	---
	Virginia pine	75	115	---
	eastern white pine	90	166	---
	shortleaf pine	75	120	---
AfA:				
Ashton, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	sweetgum	87	98	---
	pin oak	94	76	348
	silver maple	95	46	---
	American sycamore	---	---	---
	red maple	---	---	---
AfB:				
Ashton, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	sweetgum	87	98	---
	pin oak	94	76	348
	silver maple	95	46	---
	American sycamore	---	---	---
	red maple	---	---	---
AsA:				
Ashton, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	sweetgum	87	98	---
	pin oak	94	76	348
	silver maple	95	46	---
	American sycamore	---	---	---
	red maple	---	---	---
AsB:				
Ashton, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	sweetgum	87	98	---
	pin oak	94	76	348
	silver maple	95	46	---
	American sycamore	---	---	---
	red maple	---	---	---
AuB:				
Ashton, rarely flooded	---	---	---	---
Gallipolis, rarely flooded	---	---	---	---
Urban land	---	---	---	---
CcC:				
Cedarcreek	northern red oak	80	62	250
	yellow-poplar	105	115	650
	black locust	100	86	---
	eastern white pine	94	174	740
	American sycamore	90	98	---
	Virginia pine	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
CcE:				
Cedarcreek	northern red oak	80	62	250
	yellow-poplar	105	115	650
	black locust	100	86	---
	eastern white pine	94	174	740
	American sycamore	90	98	---
	Virginia pine	---	---	---
CdA:				
Chagrin, occasionally flooded	northern red oak	86	68	292
	yellow-poplar	96	100	524
	American sycamore	---	---	---
	silver maple	---	---	---
	boxelder	---	---	---
	red maple	---	---	---
CfA:				
Chagrin, frequently flooded	northern red oak	86	68	292
	yellow-poplar	96	100	524
	American sycamore	---	---	---
	silver maple	---	---	---
	boxelder	---	---	---
	red maple	---	---	---
Melvin, frequently flooded	pin oak	95	77	355
	sweetgum	87	98	---
	green ash	---	---	---
	red maple	---	---	---
	American sycamore	---	---	---
	willow	---	---	---
ChA:				
Chavies	northern red oak	80	62	250
	yellow-poplar	90	90	440
	white oak	---	---	---
	black walnut	---	---	---
	hickory	---	---	---
	eastern white pine	---	---	---
ChB:				
Chavies	northern red oak	80	62	250
	yellow-poplar	90	90	440
	white oak	---	---	---
	black walnut	---	---	---
	hickory	---	---	---
	eastern white pine	---	---	---
ChC:				
Chavies	northern red oak	80	62	250
	yellow-poplar	90	90	440
	white oak	---	---	---
	black walnut	---	---	---
	hickory	---	---	---
	eastern white pine	---	---	---
CkB:				
Chavies	---	---	---	---
Urban land	---	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
CoA:				
Conotton	northern red oak	70	52	180
	yellow-poplar	83	72	356
	white oak	70	57	---
	red maple	---	---	---
CsB:				
Coolville	northern red oak	66	48	152
	yellow-poplar	68	51	188
	shortleaf pine	68	106	---
	eastern white pine	90	166	---
	white oak	---	---	---
	black cherry	---	---	---
	white ash	---	---	---
	sugar maple	---	---	---
	hickory	---	---	---
Tilsit	northern red oak	70	52	180
	yellow-poplar	89	88	428
	eastern white pine	80	144	---
	Virginia pine	70	109	---
	shortleaf pine	78	126	---
	white oak	68	50	---
	hickory	---	---	---
CuD:				
Culleoka	northern red oak	80	62	250
	yellow-poplar	95	98	510
	white oak	70	52	---
	black cherry	---	---	---
	red maple	---	---	---
	black locust	---	---	---
Lowell	northern red oak	75	57	215
	yellow-poplar	85	81	380
	sugar maple	75	43	---
	black locust	---	---	---
	black cherry	---	---	---
	white ash	---	---	---
	red maple	---	---	---
CuE:				
Culleoka	northern red oak	80	62	250
	yellow-poplar	95	98	510
	white oak	70	52	---
	black cherry	---	---	---
	red maple	---	---	---
	black locust	---	---	---
Lowell	northern red oak	75	57	215
	yellow-poplar	85	81	380
	sugar maple	75	43	---
	black locust	---	---	---
	black cherry	---	---	---
	white ash	---	---	---
	red maple	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
DuC:				
Duncannon	northern red oak	80	62	250
	yellow-poplar	85	81	380
	black walnut	---	---	---
	eastern white pine	---	---	---
	red maple	---	---	---
	hickory	---	---	---
DuD:				
Duncannon	northern red oak	80	62	250
	yellow-poplar	85	81	380
	black walnut	---	---	---
	eastern white pine	---	---	---
	red maple	---	---	---
	hickory	---	---	---
DuE:				
Duncannon	northern red oak	80	62	250
	yellow-poplar	85	81	380
	black walnut	---	---	---
	eastern white pine	---	---	---
	red maple	---	---	---
	hickory	---	---	---
EkA:				
Elk, rarely flooded	northern red oak	85	67	285
	yellow-poplar	91	92	454
	pin oak	96	78	362
	sweetgum	---	---	---
	black walnut	---	---	---
	American sycamore	---	---	---
	white ash	---	---	---
	red maple	---	---	---
EkB:				
Elk, rarely flooded	northern red oak	85	67	285
	yellow-poplar	91	92	454
	pin oak	96	78	362
	sweetgum	---	---	---
	black walnut	---	---	---
	American sycamore	---	---	---
	white ash	---	---	---
	red maple	---	---	---
GaC:				
Gallia	northern red oak	95	77	355
	yellow-poplar	95	98	510
	white oak	85	67	285
	black walnut	---	---	---
	white ash	---	---	---
	sugar maple	---	---	---
	eastern white pine	---	---	---
GfA:				
Gallipolis	northern red oak	85	67	285
	yellow-poplar	95	98	510
	white oak	---	---	---
	American sycamore	---	---	---
	red maple	---	---	---
	white ash	---	---	---
	sweetgum	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
GfB:				
Gallipolis--------------	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	white oak-----------	---	---	---
	American sycamore---	---	---	---
	red maple-----------	---	---	---
	white ash-----------	---	---	---
	sweetgum------------	---	---	---
GgA:				
Gallipolis, rarely flooded----------------	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	American sycamore---	---	---	---
	red maple-----------	---	---	---
	white ash-----------	---	---	---
	sweetgum------------	---	---	---
GgB:				
Gallipolis, rarely flooded----------------	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	American sycamore---	---	---	---
	red maple-----------	---	---	---
	white ash-----------	---	---	---
	sweetgum------------	---	---	---
GhB:				
Gallipolis--------------	---	---	---	---
Urban land--------------	---	---	---	---
GlF3:				
Gilpin------------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---
Peabody-----------------	northern red oak----	70	52	180
	yellow-poplar-------	90	90	440
	Virginia pine-------	66	102	---
GmF:				
Gilpin, very stony------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---
	white oak-----------	67	49	159
	hickory-------------	---	---	---
Peabody, very stony-----	northern red oak----	70	52	180
	yellow-poplar-------	90	90	440
	white oak-----------	65	48	145
	Virginia pine-------	66	102	---
	hickory-------------	---	---	---
GoF:				
Gilpin------------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---
	white oak-----------	67	49	159
	hickory-------------	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			
	Common trees	Site index	Annual production*	
			Cubic feet per acre	Board feet per acre
GoF:				
Peabody	northern red oak	70	52	180
	yellow-poplar	90	90	440
	white oak	65	48	145
	Virginia pine	66	102	---
	hickory	---	---	---
Rock outcrop	---	---	---	---
GpC:				
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	71	110	---
	white oak	66	48	152
	hickory	---	---	---
Upshur	northern red oak	65	48	145
	yellow-poplar	80	71	320
	Virginia pine	66	102	---
	eastern white pine	80	144	630
	hickory	---	---	---
GpD:				
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
	white oak	67	49	159
	hickory	---	---	---
Upshur	northern red oak	74	56	208
	yellow-poplar	90	90	440
	Virginia pine	69	107	---
	eastern white pine	78	139	---
	white oak	69	51	173
	hickory	---	---	---
GpD3:				
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
Upshur	northern red oak	74	56	208
	yellow-poplar	90	90	440
	Virginia pine	69	107	---
GpE:				
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
	white oak	67	49	159
	hickory	---	---	---
Upshur	northern red oak	74	56	208
	yellow-poplar	90	90	440
	Virginia pine	69	107	---
	eastern white pine	78	139	---
	white oak	69	51	173
	hickory	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			
	Common trees	Site index	Annual production*	
			Cubic feet per acre	Board feet per acre
GpE3:				
Gilpin-----------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---
Upshur-----------------	northern red oak----	74	56	208
	yellow-poplar-------	90	90	440
	Virginia pine-------	69	107	---
GsA:				
Ginat------------------	pin oak------------	95	77	355
	sweetgum-----------	95	100	---
	red maple----------	---	---	---
	green ash----------	---	---	---
GtA:				
Ginat, rarely flooded---	pin oak------------	95	77	355
	sweetgum-----------	95	100	---
	red maple----------	---	---	---
	green ash----------	---	---	---
GvA:				
Ginat, rarely flooded---	pin oak------------	95	77	355
	sweetgum-----------	95	100	---
	red maple----------	---	---	---
	green ash----------	---	---	---
GxB:				
Glenford---------------	northern red oak----	86	68	292
	yellow-poplar-------	96	100	524
	white oak----------	---	---	---
	black walnut--------	---	---	---
	white ash----------	---	---	---
GxC:				
Glenford---------------	northern red oak----	86	68	292
	yellow-poplar-------	96	100	524
	white oak----------	---	---	---
	black walnut--------	---	---	---
	white ash----------	---	---	---
HaA:				
Hackers, rarely flooded-	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	white ash----------	85	11	463
	American sycamore---	---	---	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
HaB:				
Hackers, rarely flooded-	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	white ash----------	85	111	463
	American sycamore---	---	---	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production* Cubic feet per acre	Annual production* Board feet per acre
HoA:				
Huntington, occasionally flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	silver maple	---	---	---
	American sycamore	---	---	---
	boxelder	---	---	---
HuA:				
Huntington, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	silver maple	---	---	---
	American sycamore	---	---	---
	black walnut	---	---	---
KnA:				
Kanawha, rarely flooded	northern red oak	80	62	250
	yellow-poplar	90	90	440
	white oak	80	62	250
LaB:				
Lakin	northern red oak	60	43	110
	Virginia pine	60	91	---
	chestnut oak	60	43	110
	eastern white pine	---	---	---
LaC:				
Lakin	northern red oak	60	43	110
	Virginia pine	60	91	---
	chestnut oak	60	43	110
	eastern white pine	---	---	---
LaD:				
Lakin	northern red oak	60	43	110
	Virginia pine	60	91	---
	chestnut oak	60	43	110
	eastern white pine	---	---	---
LbB:				
Lakin	---	---	---	---
Urban land	---	---	---	---
Ld:				
Landfills	---	---	---	---
LlD:				
Lily	northern red oak	78	60	236
	yellow-poplar	90	90	440
	Virginia pine	65	100	---
	shortleaf pine	63	95	---
	white oak	73	55	---
	chestnut oak	73	55	---
LlE:				
Lily	northern red oak	78	60	236
	yellow-poplar	90	90	440
	Virginia pine	65	100	---
	shortleaf pine	63	95	---
	white oak	73	55	---
	chestnut oak	73	55	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production* Cubic feet per acre	Annual production* Board feet per acre
LsA:				
Lindside, occasionally flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	white oak	85	67	285
	red maple	---	---	---
	black walnut	---	---	---
	white ash	85	111	---
LtA:				
Lindside, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	white oak	85	67	285
	red maple	---	0	---
	black walnut	---	0	---
	white ash	85	111	---
LvA:				
Lobdell, occasionally flooded	northern red oak	87	69	299
	yellow-poplar	96	100	524
	white ash	---	---	---
	red maple	---	---	---
LzC:				
Lowell	northern red oak	75	57	215
	yellow-poplar	85	81	380
	sugar maple	75	43	---
	black locust	---	---	---
	black cherry	---	---	---
	white ash	---	---	---
	red maple	---	---	---
Culleoka	northern red oak	80	62	250
	yellow-poplar	95	98	510
	white oak	70	52	---
	black cherry	---	---	---
	red maple	---	---	---
	black locust	---	---	---
McA:				
McGary	northern red oak	74	56	208
	yellow-poplar	85	81	380
	sweetgum	80	86	---
	pin oak	80	62	---
	American sycamore	---	---	---
	red maple	---	---	---
	eastern white pine	---	---	---
Shircliff	northern red oak	78	60	215
	yellow-poplar	85	81	380
	white oak	75	57	236
	white ash	---	---	---
	eastern white pine	---	---	---
MdA:				
Melvin, occasionally flooded	pin oak	95	77	355
	sweetgum	87	98	---
	green ash	---	---	---
	red maple	---	---	---
	American sycamore	---	---	---
	willow	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			
	Common trees	Site index	Annual production*	
			Cubic feet per acre	Board feet per acre
MeA:				
Melvin, rarely flooded--	pin oak------------	95	77	355
	sweetgum-----------	87	98	---
	green ash----------	---	---	---
	red maple----------	---	---	---
	American sycamore---	---	---	---
	willow-------------	---	---	---
MgB:				
Monongahela-------------	northern red oak----	70	52	180
	yellow-poplar-------	85	81	380
	Virginia pine-------	66	102	---
	eastern white pine--	72	126	545
	black walnut--------	---	---	---
	white ash----------	---	---	---
MoA:				
Moshannon, occasionally flooded---------------	northern red oak----	85	67	285
	yellow-poplar-------	95	98	510
	American sycamore---	---	---	---
	black walnut--------	---	---	---
	white oak----------	---	---	---
	white ash----------	---	---	---
	red maple----------	---	---	---
OmA:				
Omulga------------------	northern red oak----	80	62	250
	yellow-poplar-------	85	81	380
	white oak----------	---	---	---
	black walnut--------	---	---	---
	white ash----------	---	---	---
	eastern white pine--	---	---	---
OmB:				
Omulga------------------	northern red oak----	80	62	250
	yellow-poplar-------	85	81	380
	white oak----------	---	---	---
	black walnut--------	---	---	---
	white ash----------	---	---	---
	eastern white pine--	---	---	---
PgF:				
Peabody-----------------	northern red oak----	70	52	180
	yellow-poplar-------	90	90	440
	white oak----------	65	48	145
	Virginia pine-------	66	102	---
	hickory------------	---	---	---
Gilpin------------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---
	white oak----------	67	49	159
	hickory------------	---	---	---
PgF3:				
Peabody-----------------	northern red oak----	70	52	180
	yellow-poplar-------	90	90	440
	Virginia pine-------	66	102	---
Gilpin------------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	Virginia pine-------	74	114	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Annual production*: Cubic feet per acre	Board feet per acre
Qu:				
Pits	---	---	---	---
SeA:				
Senecaville, occasionally flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	white ash	85	114	---
	white oak	84	66	278
SfA:				
Senecaville, rarely flooded	northern red oak	85	67	285
	yellow-poplar	95	98	510
	white ash	85	114	---
	white oak	84	66	278
SnA:				
Sensabaugh, occasionally flooded	northern red oak	85	67	285
	yellow-poplar	100	107	580
	white oak	80	62	250
	shortleaf pine	80	130	543
	Virginia pine	75	115	---
	American sycamore	---	---	---
	black walnut	---	---	---
SrB:				
Sensabaugh, rarely flooded	northern red oak	85	67	285
	yellow-poplar	100	107	580
	white oak	80	62	250
	shortleaf pine	80	130	543
	Virginia pine	75	115	---
	American sycamore	---	---	---
	black walnut	---	---	---
StC:				
Shircliff	northern red oak	78	60	215
	white oak	75	57	236
	yellow-poplar	85	81	380
	white ash	---	---	---
	eastern white pine	---	---	---
SxB:				
Shircliff	northern red oak	78	60	215
	white oak	75	57	236
	yellow-poplar	85	81	380
	white ash	---	---	---
	eastern white pine	---	---	---
McGary	northern red oak	74	56	208
	yellow-poplar	85	81	380
	sweetgum	80	86	---
	pin oak	80	62	---
	American sycamore	---	---	---
	red maple	---	---	---
	eastern white pine	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Annual production*: Cubic feet per acre	Board feet per acre
TaA:				
Taggart	northern red oak	75	57	215
	yellow-poplar	85	81	380
	pin oak	85	67	285
	sweetgum	80	86	---
	white oak	75	57	215
TfA:				
Taggart, rarely flooded	northern red oak	75	57	215
	yellow-poplar	85	81	380
	pin oak	85	67	285
	sweetgum	80	86	---
	white oak	75	57	215
ThC:				
Tarhollow	northern red oak	68	50	166
	yellow-poplar	91	92	454
	white ash	---	---	---
	white oak	---	---	---
	Virginia pine	---	---	---
	shortleaf pine	---	---	---
ThD:				
Tarhollow	northern red oak	68	50	166
	yellow-poplar	91	92	454
	white ash	---	---	---
	white oak	---	---	---
	Virginia pine	---	---	---
	shortleaf pine	---	---	---
Ud:				
Udorthents	---	---	---	---
Urban land	---	---	---	---
UeB:				
Upshur	northern red oak	65	48	145
	yellow-poplar	80	71	320
	Virginia pine	66	102	---
	eastern white pine	80	144	630
	hickory	---	---	---
	shortleaf pine	---	---	---
UeC:				
Upshur	northern red oak	65	48	145
	yellow-poplar	80	71	320
	Virginia pine	66	102	---
	eastern white pine	80	144	630
	hickory	---	---	---
	shortleaf pine	---	---	---
UeD:				
Upshur	northern red oak	70	52	180
	yellow-poplar	90	90	440
	Virginia pine	70	109	---
	eastern white pine	90	166	743
	hickory	---	---	---
	shortleaf pine	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
UgC:				
Upshur	northern red oak	65	48	145
	yellow-poplar	80	71	320
	Virginia pine	66	102	---
	eastern white pine	80	144	630
	hickory	---	---	---
	shortleaf pine	---	---	---
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	71	110	---
	white oak	66	48	152
	hickory	---	---	---
UgD:				
Upshur	northern red oak	70	52	180
	yellow-poplar	90	90	440
	Virginia pine	70	109	---
	eastern white pine	90	166	743
	hickory	---	---	---
	shortleaf pine	---	---	---
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
	white oak	67	49	159
	hickory	---	---	---
UgD3:				
Upshur	northern red oak	70	52	180
	yellow-poplar	90	90	440
	Virginia pine	70	109	---
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
UgE:				
Upshur	northern red oak	70	52	180
	yellow-poplar	90	90	440
	Virginia pine	70	109	---
	eastern white pine	90	166	743
	hickory	---	---	---
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---
	white oak	67	49	159
	hickory	---	---	---
UgE3:				
Upshur	northern red oak	70	52	180
	yellow-poplar	90	90	440
	Virginia pine	70	109	---
Gilpin	northern red oak	80	62	250
	yellow-poplar	90	90	440
	Virginia pine	74	114	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			
	Common trees	Site index	Annual production*	
			Cubic feet per acre	Board feet per acre
VdC:				
Vandalia----------------	northern red oak----	73	55	201
	yellow-poplar-------	75	62	265
	Virginia pine-------	70	109	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
VdD:				
Vandalia----------------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
VdE:				
Vandalia----------------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
VsD3:				
Vandalia----------------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
VsE3:				
Vandalia----------------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
VtE:				
Vandalia----------------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
VxE:				
Vandalia, bouldery------	northern red oak----	77	59	229
	yellow-poplar-------	90	90	440
	Virginia pine-------	80	122	---
	black walnut--------	---	---	---
WsA:				
Wheeling----------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
WsB:				
Wheeling----------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	black walnut--------	---	---	---
	eastern white pine--	---	---	---
WsC:				
Wheeling----------------	northern red oak----	80	62	250
	yellow-poplar-------	90	90	440
	black walnut--------	---	---	---
	eastern white pine--	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Common trees	Site index	Annual production*: Cubic feet per acre	Annual production*: Board feet per acre
WuB:				
Wheeling----------------	---	---	---	---
Urban land--------------	---	---	---	---
ZoB:				
Zoar--------------------	northern red oak----	70	52	180
	yellow-poplar-------	80	71	320
	Virginia pine-------	70	109	---
	white oak-----------	70	52	180
	red maple-----------	---	---	---
ZoC:				
Zoar--------------------	northern red oak----	70	52	180
	yellow-poplar-------	80	71	320
	Virginia pine-------	70	109	---
	white oak-----------	70	52	180
	red maple-----------	---	---	---

* Annual production is given as cubic feet per acre, calculated at the age of culmination of the mean annual increment (CMAI), or as board feet per acre, calculated using the International 1/4-inch rule.

Table 10a.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 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		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
AeC:							
Allegheny	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
AfA:							
Ashton, rarely flooded	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
AfB:							
Ashton, rarely flooded	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
AsA:							
Ashton, rarely flooded	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
AsB:							
Ashton, rarely flooded	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
AuB:							
Ashton, rarely flooded	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Gallipolis, rarely flooded	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Severe		Moderately suited		Moderate	
		Stoniness	1.00	Slope	0.50	Low strength	0.50
		Landslides	0.10	Landslides	0.10		
CcE:							
Cedarcreek	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Landslides	0.10	Landslides	0.10		
CdA:							
Chagrin, occasionally flooded	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
CfA:							
Chagrin, frequently flooded	45	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Melvin, frequently flooded	25	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		
ChA:							
Chavies	80	Slight		Well suited		Moderate	
						Low strength	0.50
ChB:							
Chavies	80	Slight		Well suited		Moderate	
						Low strength	0.50
ChC:							
Chavies	70	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
CkB:							
Chavies	45	Slight		Well suited		Moderate	
						Low strength	0.50
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Slight		Well suited		Slight	
						Strength	0.10
CsB:							
Coolville	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Tilsit	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
CuD:							
Culleoka	50	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Landslides	0.50	Landslides	0.50		
Lowell	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Restrictive layer	0.50	Landslides	0.50		
CuE:							
Culleoka	50	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
		Restrictive layer	0.50	Low strength	0.50		
Lowell	30	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
		Restrictive layer	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
DuC:							
Duncannon	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
DuD:							
Duncannon	70	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
DuE:							
Duncannon	60	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
EkA:							
Elk, rarely flooded	65	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
EkB:							
Elk, rarely flooded	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GaC:							
Gallia	60	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
GfA:							
Gallipolis	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GfB:							
Gallipolis	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GgA:							
Gallipolis, rarely flooded	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GgB:							
Gallipolis, rarely flooded	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GhB:							
Gallipolis	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Urban land	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Peabody	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
GmF:							
Gilpin, very stony--	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Peabody, very stony-	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
GoF:							
Gilpin, very stony--	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Peabody, very stony-	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
GpC:							
Gilpin--------------	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
Upshur--------------	25	Moderate		Moderately suited		Severe	
		Landslides	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Landslides	0.50		
GpD:							
Gilpin--------------	55	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
				Landslides	0.50		
Upshur--------------	25	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
GpD3:							
Gilpin--------------	55	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Upshur--------------	25	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
GpE:							
Gilpin--------------	50	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		

Table 10a.--Forestland Management--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
GpE:							
Upshur	20	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
GpE3:							
Gilpin	50	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Upshur	20	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
GsA:							
Ginat	85	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
GtA:							
Ginat, rarely flooded	80	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
GvA:							
Ginat, rarely flooded	80	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
GxB:							
Glenford	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
GxC:							
Glenford	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
HaA:							
Hackers, rarely flooded	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
HaB:							
Hackers, rarely flooded	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
HoA:							
Huntington, occasionally flooded	80	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
HuA:							
Huntington, rarely flooded-----------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
KnA:							
Kanawha, rarely flooded-----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
LaB:							
Lakin---------------	75	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
LaC:							
Lakin---------------	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
LaD:							
Lakin---------------	85	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
LbB:							
Lakin---------------	45	Slight		Well suited		Moderate	
						Low strength	0.50
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	
LlD:							
Lily----------------	75	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Landslides	0.50	Landslides	0.50		
LlE:							
Lily----------------	75	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Landslides	0.50	Landslides	0.50		
LsA:							
Lindside, occasionally flooded-----------	85	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
LtA:							
Lindside, rarely flooded-----------	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
LvA:							
Lobdell, occasionally flooded-----------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
LzC:							
Lowell	50	Moderate		Moderately suited		Severe	
		Landslides	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Landslides	0.50		
Culleoka	35	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		
McA:							
McGary	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
Shircliff	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
MdA:							
Melvin, occasionally flooded	85	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Flooding	0.50	Flooding	0.50		
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
MeA:							
Melvin, rarely flooded	85	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
MgB:							
Monongahela	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
MoA:							
Moshannon, occasionally flooded	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
OmA:							
Omulga	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
OmB:							
Omulga	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
PgF:							
Peabody	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--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
PgF:							
Gilpin--------------	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
PgF3:							
Peabody-------------	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Gilpin--------------	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Qu:							
Quarries, sand and gravel-------------	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded------------	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
SfA:							
Senecaville, rarely flooded------------	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
SnA:							
Sensabaugh, occasionally flooded------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
SrB:							
Sensabaugh, rarely flooded------------	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
StC:							
Shircliff-----------	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
SxB:							
Shircliff-----------	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
McGary--------------	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
TaA:							
Taggart-------------	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 10a.--Forestland Management--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
TfA:							
Taggart, rarely flooded	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
ThC:							
Tarhollow	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
ThD:							
Tarhollow	75	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
				Landslides	0.50		
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Slope	0.50		
				Landslides	0.10		
UeC:							
Upshur	75	Moderate		Moderately suited		Severe	
		Landslides	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Landslides	0.50		
UeD:							
Upshur	75	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
UgC:							
Upshur	65	Moderate		Moderately suited		Severe	
		Landslides	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Landslides	0.50		
Gilpin	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
UgD:							
Upshur	55	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Gilpin	25	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
				Landslides	0.50		

Table 10a.--Forestland Management--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
UgD3:							
Upshur	55	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Gilpin	25	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
UgE:							
Upshur	50	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Gilpin	25	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
UgE3:							
Upshur	50	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
Gilpin	25	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
VdC:							
Vandalia	75	Moderate		Moderately suited		Severe	
		Landslides	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Landslides	0.50		
VdD:							
Vandalia	75	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
VdE:							
Vandalia	65	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
VsD3:							
Vandalia	75	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
VsE3:							
Vandalia	65	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		

Table 10a.--Forestland Management--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
VtE:							
Vandalia, very stony	65	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
VxE:							
Vandalia, bouldery--	65	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
				Low strength	0.50		
WsA:							
Wheeling------------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WsB:							
Wheeling------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WsC:							
Wheeling------------	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
WuB:							
Wheeling------------	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
ZoC:							
Zoar----------------	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		

Table 10b.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 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
AeC:							
Allegheny	70	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
AfA:							
Ashton, rarely flooded	80	Slight		Slight		Moderately suited	
						Low strength	0.50
AfB:							
Ashton, rarely flooded	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
AsA:							
Ashton, rarely flooded	80	Slight		Slight		Moderately suited	
						Low strength	0.50
AsB:							
Ashton, rarely flooded	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
AuB:							
Ashton, rarely flooded	35	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
Gallipolis, rarely flooded	35	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Slight		Moderate		Moderately suited	
				Slope	0.50	Slope	0.50
				Erodibility	0.50	Landslides	0.10
CcE:							
Cedarcreek	90	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
				Erodibility	0.95	Landslides	0.10
CdA:							
Chagrin, occasionally flooded	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
CfA:							
Chagrin, frequently flooded	45	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Melvin, frequently flooded	25	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
ChA:							
Chavies	80	Slight		Slight		Well suited	
ChB:							
Chavies	80	Slight		Moderate		Well suited	
				Slope	0.50		
				Erodibility	0.50		
ChC:							
Chavies	70	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95		
CkB:							
Chavies	45	Slight		Moderate		Well suited	
				Slope	0.50		
				Erodibility	0.50		
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Slight		Slight		Well suited	
CsB:							
Coolville	50	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
Tilsit	30	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
CuD:							
Culleoka	50	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
Lowell	40	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
CuE:							
Culleoka	50	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Lowell	30	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
DuC:							
Duncannon-----------	70	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
						Low strength	0.50
DuD:							
Duncannon-----------	70	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
DuE:							
Duncannon-----------	60	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
EkA:							
Elk, rarely flooded-	65	Slight		Slight		Moderately suited	
						Low strength	0.50
EkB:							
Elk, rarely flooded-	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
GaC:							
Gallia--------------	60	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
GfA:							
Gallipolis----------	80	Slight		Slight		Moderately suited	
						Low strength	0.50
GfB:							
Gallipolis----------	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
GgA:							
Gallipolis, rarely flooded------------	75	Slight		Slight		Moderately suited	
						Low strength	0.50
GgB:							
Gallipolis, rarely flooded------------	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
GhB:							
Gallipolis----------	45	Slight		Slight		Moderately suited	
						Low strength	0.50
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Peabody-------------	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
GmF:							
Gilpin, very stony--	45	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Peabody, very stony-	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
GoF:							
Gilpin, very stony--	40	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Peabody, very stony-	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Rock outcrop--------	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
						Landslides	0.10
Upshur--------------	25	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
GpD:							
Gilpin--------------	55	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
Upshur--------------	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
GpD3:							
Gilpin--------------	55	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Upshur--------------	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
GpE:							
Gilpin--------------	50	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Upshur--------------	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
GpE3:							
Gilpin	50	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Upshur	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
GsA:							
Ginat	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	0.50
						Low strength	0.50
GtA:							
Ginat, rarely flooded	80	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	0.50
						Low strength	0.50
GvA:							
Ginat, rarely flooded	80	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	0.50
						Low strength	0.50
GxB:							
Glenford	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
GxC:							
Glenford	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
HaA:							
Hackers, rarely flooded	85	Slight		Slight		Moderately suited	
						Low strength	0.50
HaB:							
Hackers, rarely flooded	90	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
HoA:							
Huntington, occasionally flooded	80	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
HuA:							
Huntington, rarely flooded	80	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 10b.--Forestland Management--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
KnA:							
Kanawha, rarely flooded	85	Slight		Slight		Moderately suited	
						Low strength	0.50
LaB:							
Lakin	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Slope	0.50
				Erodibility	0.50		
LaC:							
Lakin	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Slope	0.50
				Erodibility	0.50		
LaD:							
Lakin	85	Slight		Moderate		Moderately suited	
				Slope	0.50	Slope	0.50
				Erodibility	0.50		
LbB:							
Lakin	45	Slight		Moderate		Well suited	
				Slope	0.50		
				Erodibility	0.50		
Urban land	35	Not rated		Not rated		Not rated	
Ld:							
Landfills	95	Not rated		Not rated		Not rated	
LlD:							
Lily	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	0.50
LlE:							
Lily	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	0.50
LsA:							
Lindside, occasionally flooded	85	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
LtA:							
Lindside, rarely flooded	75	Slight		Slight		Moderately suited	
						Low strength	0.50
LvA:							
Lobdell, occasionally flooded	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
LzC:							
Lowell	50	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50

Table 10b.--Forestland Management--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
LzC:							
Culleoka	35	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
						Landslides	0.50
McA:							
McGary	45	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
Shircliff	35	Slight		Slight		Moderately suited	
						Low strength	0.50
MdA:							
Melvin, occasionally flooded	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
MeA:							
Melvin, rarely flooded	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
MgB:							
Monongahela	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
MoA:							
Moshannon, occasionally flooded	80	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
OmA:							
Omulga	70	Slight		Slight		Moderately suited	
						Low strength	0.50
OmB:							
Omulga	70	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
PgF:							
Peabody	45	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Gilpin	35	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
PgF3:							
Peabody	45	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Gilpin	35	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
SfA:							
Senecaville, rarely flooded	70	Slight		Slight		Moderately suited	
						Low strength	0.50
SnA:							
Sensabaugh, occasionally flooded	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
SrB:							
Sensabaugh, rarely flooded	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
StC:							
Shircliff	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
SxB:							
Shircliff	45	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
McGary	35	Slight		Moderate		Moderately suited	
				Slope	0.50	Wetness	0.50
				Erodibility	0.50	Low strength	0.50
TaA:							
Taggart	70	Slight		Slight		Moderately suited	
						Low strength	0.50
TfA:							
Taggart, rarely flooded	70	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 10b.--Forestland Management--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
ThC:							
Tarhollow-----------	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.10
ThD:							
Tarhollow-----------	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
Ud:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	30	Not rated		Not rated		Not rated	
UeB:							
Upshur--------------	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
						Landslides	0.10
UeC:							
Upshur--------------	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
UeD:							
Upshur--------------	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
UgC:							
Upshur--------------	65	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
Gilpin--------------	20	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
						Landslides	0.10
UgD:							
Upshur--------------	55	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Gilpin--------------	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
UgD3:							
Upshur--------------	55	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
UgD3:							
Gilpin	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
UgE:							
Upshur	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Gilpin	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
UgE3:							
Upshur	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
Gilpin	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
VdC:							
Vandalia	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
						Landslides	0.50
VdD:							
Vandalia	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
VdE:							
Vandalia	65	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
VsD3:							
Vandalia	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
VsE3:							
Vandalia	65	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
VtE:							
Vandalia, very stony	65	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50

Table 10b.--Forestland Management--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
VxE:							
Vandalia, bouldery--	65	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Landslides	1.00
						Low strength	0.50
WsA:							
Wheeling------------	80	Slight		Slight		Moderately suited	
						Low strength	0.50
WsB:							
Wheeling------------	85	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
WsC:							
Wheeling------------	70	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
WuB:							
Wheeling------------	45	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
ZoC:							
Zoar----------------	75	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50

Table 10c.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 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		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AeC:							
Allegheny	70	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
AfA:							
Ashton, rarely flooded	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
AfB:							
Ashton, rarely flooded	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
AsA:							
Ashton, rarely flooded	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
AsB:							
Ashton, rarely flooded	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
AuB:							
Ashton, rarely flooded	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Gallipolis, rarely flooded	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
				Slope	0.50		
CcE:							
Cedarcreek	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
CdA:							
Chagrin, occasionally flooded	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CfA:							
Chagrin, frequently flooded	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Melvin, frequently flooded	25	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10c.--Forestland Management--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
ChA:							
Chavies	80	Well suited		Well suited		Well suited	
ChB:							
Chavies	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
ChC:							
Chavies	70	Well suited		Moderately suited		Well suited	
				Slope	0.50		
CkB:							
Chavies	45	Well suited		Well suited		Well suited	
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
CsB:							
Coolville	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Tilsit	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CuD:							
Culleoka	50	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Lowell	40	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
CuE:							
Culleoka	50	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Lowell	30	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
						Slope	0.50
DuC:							
Duncannon	70	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
DuD:							
Duncannon	70	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
DuE:							
Duncannon	60	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
						Slope	0.50
EkA:							
Elk, rarely flooded	65	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10c.--Forestland Management--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
EkB:							
Elk, rarely flooded-	75	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GaC:							
Gallia--------------	60	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GfA:							
Gallipolis----------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
GfB:							
Gallipolis----------	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GgA:							
Gallipolis, rarely flooded-----------	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
GgB:							
Gallipolis, rarely flooded-----------	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GhB:							
Gallipolis----------	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
Peabody-------------	20	Moderately suited		Unsuited		Poorly suited	
		Stickiness	0.50	Slope	1.00	Slope	1.00
		High plasticity index	0.50	Stickiness	0.50	Low strength	0.50
		Slope	0.50	High plasticity index	0.50		
				Rock fragments	0.50		
GmF:							
Gilpin, very stony--	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
Peabody, very stony-	20	Moderately suited		Unsuited		Poorly suited	
		Stickiness	0.50	Slope	1.00	Slope	1.00
		High plasticity index	0.50	Stickiness	0.50	Low strength	0.50
		Slope	0.50	High plasticity index	0.50		
				Rock fragments	0.50		
GoF:							
Gilpin, very stony--	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50

Table 10c.--Forestland Management--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
GoF:							
Peabody, very stony-	20	Moderately suited		Unsuited		Poorly suited	
		Stickiness	0.50	Slope	1.00	Slope	1.00
		High plasticity index	0.50	Stickiness	0.50	Low strength	0.50
		Slope	0.50	High plasticity index	0.50		
				Rock fragments	0.50		
Rock outcrop--------	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
Upshur--------------	25	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
GpD:							
Gilpin--------------	55	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Upshur--------------	25	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
GpD3:							
Gilpin--------------	55	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Upshur--------------	25	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
GpE:							
Gilpin--------------	50	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Upshur--------------	20	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
GpE3:							
Gilpin--------------	50	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Upshur--------------	20	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		

Table 10c.--Forestland Management--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
GsA:							
Ginat	85	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
GtA:							
Ginat, rarely flooded	80	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
GvA:							
Ginat, rarely flooded	80	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
GxB:							
Glenford	75	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GxC:							
Glenford	75	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
HaA:							
Hackers, rarely flooded	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
HaB:							
Hackers, rarely flooded	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
HoA:							
Huntington, occasionally flooded	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
HuA:							
Huntington, rarely flooded	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KnA:							
Kanawha, rarely flooded	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LaB:							
Lakin	75	Well suited		Moderately suited		Well suited	
				Slope	0.50		
LaC:							
Lakin	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
LaD:							
Lakin	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50

Table 10c.--Forestland Management--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
LbB:							
Lakin---------------	45	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	
LlD:							
Lily----------------	75	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
LlE:							
Lily----------------	75	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
LsA:							
Lindside, occasionally flooded------------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LtA:							
Lindside, rarely flooded------------	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LvA:							
Lobdell, occasionally flooded------------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LzC:							
Lowell--------------	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Culleoka------------	35	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
McA:							
McGary--------------	45	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
Shircliff-----------	35	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
MdA:							
Melvin, occasionally flooded------------	85	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
MeA:							
Melvin, rarely flooded------------	85	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50

Table 10c.--Forestland Management--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
MgB:							
Monongahela	80	Well suited		Moderately suited Slope	 0.50	Moderately suited Low strength	 0.50
MoA:							
Moshannon, occasionally flooded	80	Well suited		Well suited		Moderately suited Low strength	 0.50
OmA:							
Omulga	70	Well suited		Well suited		Moderately suited Low strength	 0.50
OmB:							
Omulga	70	Well suited		Moderately suited Slope	 0.50	Moderately suited Low strength	 0.50
PgF:							
Peabody	45	Moderately suited Stickiness High plasticity index Slope	 0.50 0.50 0.50	Unsuited Slope Stickiness High plasticity index Rock fragments	 1.00 0.50 0.50 0.50	Poorly suited Slope Low strength	 1.00 0.50
Gilpin	35	Moderately suited Slope	 0.50	Unsuited Slope Rock fragments	 1.00 0.50	Poorly suited Slope Low strength	 1.00 0.50
PgF3:							
Peabody	45	Moderately suited Stickiness High plasticity index Slope	 0.50 0.50 0.50	Unsuited Slope Stickiness High plasticity index Rock fragments	 1.00 0.50 0.50 0.50	Poorly suited Slope Low strength	 1.00 0.50
Gilpin	35	Moderately suited Slope	 0.50	Unsuited Slope Rock fragments	 1.00 0.50	Poorly suited Slope Low strength	 1.00 0.50
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Well suited		Well suited		Moderately suited Low strength	 0.50
SfA:							
Senecaville, rarely flooded	70	Well suited		Well suited		Moderately suited Low strength	 0.50
SnA:							
Sensabaugh, occasionally flooded	85	Well suited		Moderately suited Rock fragments	 0.50	Moderately suited Low strength	 0.50

Table 10c.--Forestland Management--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
SrB:							
Sensabaugh, rarely flooded	75	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
StC:							
Shircliff	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
SxB:							
Shircliff	45	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
McGary	35	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
TaA:							
Taggart	70	Well suited		Well suited		Moderately suited	
						Low strength	0.50
TfA:							
Taggart, rarely flooded	70	Well suited		Well suited		Moderately suited	
						Low strength	0.50
ThC:							
Tarhollow	75	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
ThD:							
Tarhollow	75	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
UeC:							
Upshur	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		

Table 10c.--Forestland Management--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
UeD:							
Upshur--------------	75	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
UgC:							
Upshur--------------	65	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
Gilpin--------------	20	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
UgD:							
Upshur--------------	55	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
Gilpin--------------	25	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
UgD3:							
Upshur--------------	55	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
Gilpin--------------	25	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
UgE:							
Upshur--------------	50	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
Gilpin--------------	25	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
UgE3:							
Upshur--------------	50	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
Gilpin--------------	25	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50

Table 10c.--Forestland Management--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
VdC:							
Vandalia------------	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Slope	0.50	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50		
				High plasticity index	0.50		
VdD:							
Vandalia------------	75	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
VdE:							
Vandalia------------	65	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
VsD3:							
Vandalia------------	75	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
VsE3:							
Vandalia------------	65	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
VtE:							
Vandalia, very stony	65	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
VxE:							
Vandalia, bouldery--	65	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
WsA:							
Wheeling------------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
WsB:							
Wheeling------------	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
WsC:							
Wheeling------------	70	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 10c.--Forestland Management--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
WuB:							
Wheeling------------	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
ZoC:							
Zoar----------------	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		

Table 11a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and 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
AeC:							
Allegheny	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
AfA:							
Ashton, rarely flooded	80	Very limited		Not limited		Not limited	
		Flooding	1.00				
AfB:							
Ashton, rarely flooded	80	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
AsA:							
Ashton, rarely flooded	80	Very limited		Not limited		Not limited	
		Flooding	1.00				
AsB:							
Ashton, rarely flooded	80	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
AuB:							
Ashton, rarely flooded	35	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.12
Gallipolis, rarely flooded	35	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.21	Restricted permeability	0.21
		Restricted permeability	0.21			Slope	0.12
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.70	Gravel content	0.70	Gravel content	1.00
						Slope	1.00
						Content of large stones	0.84
CcE:							
Cedarcreek	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.70	Gravel content	0.70	Slope	1.00
						Content of large stones	0.84
CdA:							
Chagrin, occasionally flooded	75	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
CfA:							
Chagrin, frequently flooded	45	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00

Table 11a.--Recreation--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
CfA:							
Melvin, frequently flooded	25	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	0.40	Flooding	1.00
ChA:							
Chavies	80	Not limited		Not limited		Somewhat limited	
						Gravel content	0.06
ChB:							
Chavies	80	Not limited		Not limited		Somewhat limited	
						Slope	0.88
						Gravel content	0.06
ChC:							
Chavies	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Gravel content	0.06
CkB:							
Chavies	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
						Gravel content	0.06
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.41	Gravel content	0.41	Gravel content	1.00
CsB:							
Coolville	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Slope	0.88
						Depth to saturated zone	0.07
Tilsit	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
						Slope	0.50
CuD:							
Culleoka	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
						Depth to bedrock	0.35
						Content of large stones	0.01
Lowell	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 11a.--Recreation--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
CuE:							
Culleoka------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
						Depth to bedrock	0.35
						Content of large stones	0.01
Lowell--------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
DuC:							
Duncannon-----------	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
DuD:							
Duncannon-----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
DuE:							
Duncannon-----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
EkA:							
Elk, rarely flooded-	65	Very limited		Not limited		Not limited	
		Flooding	1.00				
EkB:							
Elk, rarely flooded-	75	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.88
GaC:							
Gallia--------------	60	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
GfA:							
Gallipolis----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
GfB:							
Gallipolis----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.88
						Restricted permeability	0.21
GgA:							
Gallipolis, rarely flooded-----------	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.21	Restricted permeability	0.21
		Restricted permeability	0.21				
GgB:							
Gallipolis, rarely flooded-----------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.21	Slope	0.88
		Restricted permeability	0.21			Restricted permeability	0.21

Table 11a.--Recreation--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
GhB:							
Gallipolis----------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Peabody-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Too stony	0.53
GmF:							
Gilpin, very stony--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Too stony	0.53
GoF:							
Gilpin, very stony--	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Too stony	0.53
Rock outcrop--------	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Upshur--------------	25	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.96

Table 11a.--Recreation--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
GpD:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
GpD3:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
GpE3:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
GsA:							
Ginat	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
GtA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00				

Table 11a.--Recreation--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
GvA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00				
GxB:							
Glenford	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.88
						Depth to saturated zone	0.39
GxC:							
Glenford	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
HaA:							
Hackers, rarely flooded	85	Very limited		Not limited		Not limited	
		Flooding	1.00				
HaB:							
Hackers, rarely flooded	90	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
HoA:							
Huntington, occasionally flooded	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
HuA:							
Huntington, rarely flooded	80	Very limited		Not limited		Not limited	
		Flooding	1.00				
KnA:							
Kanawha, rarely flooded	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Gravel content	0.06
LaB:							
Lakin	75	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.44	Too sandy	0.44	Slope	1.00
						Too sandy	0.44
LaC:							
Lakin	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Too sandy	0.44	Too sandy	0.44	Too sandy	0.44
LaD:							
Lakin	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44	Too sandy	0.44

Table 11a.--Recreation--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
LbB:							
Lakin	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Slope	0.88
						Too sandy	0.44
Urban land	35	Not rated		Not rated		Not rated	
Ld:							
Landfills	95	Not rated		Not rated		Not rated	
LlD:							
Lily	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
LlE:							
Lily	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
LsA:							
Lindside, occasionally flooded	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
LtA:							
Lindside, rarely flooded	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Depth to saturated zone	0.07
		Depth to saturated zone	0.07				
LvA:							
Lobdell, occasionally flooded	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
LzC:							
Lowell	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Culleoka	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Gravel content	0.99
						Depth to bedrock	0.35
						Content of large stones	0.01
McA:							
McGary	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96

Table 11a.--Recreation--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
McA:							
Shircliff-----------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
MdA:							
Melvin, occasionally flooded------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00			Flooding	0.60
MeA:							
Melvin, rarely flooded------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00				
MgB:							
Monongahela---------	80	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.50	Restricted permeability	0.50	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.50
						Depth to saturated zone	0.39
MoA:							
Moshannon, occasionally flooded------------	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
OmA:							
Omulga--------------	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
OmB:							
Omulga--------------	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.88
						Depth to saturated zone	0.39
PgF:							
Peabody-------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Too stony	0.53
Gilpin--------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43

Table 11a.--Recreation--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
PgF3:							
Peabody	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Too stony	0.53
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
SfA:							
Senecaville, rarely flooded	70	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Depth to saturated zone	0.07
		Depth to saturated zone	0.07				
SnA:							
Sensabaugh, occasionally flooded	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Gravel content	0.18
SrB:							
Sensabaugh, rarely flooded	75	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
						Gravel content	0.18
StC:							
Shircliff	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Depth to saturated zone	0.39	Slope	0.37	Restricted permeability	0.96
		Slope	0.37	Depth to saturated zone	0.19	Depth to saturated zone	0.39
SxB:							
Shircliff	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.88
						Depth to saturated zone	0.39

Table 11a.--Recreation--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
SxB:							
McGary	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
						Slope	0.50
TaA:							
Taggart	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
TfA:							
Taggart, rarely flooded	70	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
ThC:							
Tarhollow	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.37	Slope	0.37	Restricted permeability	0.96
ThD:							
Tarhollow	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
						Restricted permeability	0.96
UeC:							
Upshur	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.96
UeD:							
Upshur	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
UgC:							
Upshur	65	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.96
Gilpin	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43

Table 11a.--Recreation--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
UgD:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
UgD3:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
UgE:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
UgE3:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.43
VdC:							
Vandalia	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
VdD:							
Vandalia	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
VdE:							
Vandalia	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04

Table 11a.--Recreation--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
VsD3:							
Vandalia------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
VsE3:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
VtE:							
Vandalia, very stony	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
VxE:							
Vandalia, bouldery--	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
						Gravel content	0.04
WsA:							
Wheeling------------	80	Not limited		Not limited		Not limited	
WsB:							
Wheeling------------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.88
WsC:							
Wheeling------------	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
WuB:							
Wheeling------------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.96
						Depth to saturated zone	0.39
ZoC:							
Zoar----------------	75	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Depth to saturated zone	0.39	Slope	0.37	Restricted permeability	0.96
		Slope	0.37	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 11b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and 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
AeC:							
Allegheny	70	Not limited		Not limited		Somewhat limited	
						Slope	0.37
AfA:							
Ashton, rarely flooded	80	Not limited		Not limited		Not limited	
AfB:							
Ashton, rarely flooded	80	Not limited		Not limited		Not limited	
AsA:							
Ashton, rarely flooded	80	Not limited		Not limited		Not limited	
AsB:							
Ashton, rarely flooded	80	Not limited		Not limited		Not limited	
AuB:							
Ashton, rarely flooded	35	Not limited		Not limited		Not limited	
Gallipolis, rarely flooded	35	Not limited		Not limited		Not limited	
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Not limited		Not limited		Somewhat limited	
						Content of large stones	0.84
						Gravel content	0.70
CcE:							
Cedarcreek	90	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Content of large stones	0.84
						Gravel content	0.70
CdA:							
Chagrin, occasionally flooded	75	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
CfA:							
Chagrin, frequently flooded	45	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Melvin, frequently flooded	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 11b.--Recreation--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
ChA:							
Chavies-------------	80	Not limited		Not limited		Not limited	
ChB:							
Chavies-------------	80	Not limited		Not limited		Not limited	
ChC:							
Chavies-------------	70	Not limited		Not limited		Somewhat limited	
						Slope	0.63
CkB:							
Chavies-------------	45	Not limited		Not limited		Not limited	
Urban land----------	35	Not rated		Not rated		Not rated	
CoA:							
Conotton------------	75	Not limited		Not limited		Somewhat limited	
						Gravel content	0.41
						Droughty	0.18
CsB:							
Coolville-----------	50	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
Tilsit--------------	30	Not limited		Not limited		Not limited	
CuD:							
Culleoka------------	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.35
						Content of large stones	0.01
Lowell--------------	40	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
CuE:							
Culleoka------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.35
						Content of large stones	0.01
Lowell--------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
DuC:							
Duncannon-----------	70	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
DuD:							
Duncannon-----------	70	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
DuE:							
Duncannon-----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		

Table 11b.--Recreation--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
EkA:							
Elk, rarely flooded-	65	Not limited		Not limited		Not limited	
EkB:							
Elk, rarely flooded-	75	Not limited		Not limited		Not limited	
GaC:							
Gallia--------------	60	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
GfA:							
Gallipolis----------	80	Not limited		Not limited		Not limited	
GfB:							
Gallipolis----------	80	Not limited		Not limited		Not limited	
GgA:							
Gallipolis, rarely flooded-----------	75	Not limited		Not limited		Not limited	
GgB:							
Gallipolis, rarely flooded-----------	80	Not limited		Not limited		Not limited	
GhB:							
Gallipolis----------	45	Not limited		Not limited		Not limited	
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
Peabody-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Droughty	0.62
GmF:							
Gilpin, very stony--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Droughty	0.62
GoF:							
Gilpin, very stony--	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Droughty	0.62
Rock outcrop--------	10	Not rated		Not rated		Not rated	

Table 11b.--Recreation--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
GpC:							
Gilpin	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.46
Upshur	25	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
GpD:							
Gilpin	55	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.46
Upshur	25	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
GpD3:							
Gilpin	55	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.46
Upshur	25	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
GpE:							
Gilpin	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.46
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
GpE3:							
Gilpin	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.46
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
GsA:							
Ginat	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
GtA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
GvA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--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
GxB:							
Glenford------------	75	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
GxC:							
Glenford------------	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
						Depth to saturated zone	0.19
HaA:							
Hackers, rarely flooded------------	85	Not limited		Not limited		Not limited	
HaB:							
Hackers, rarely flooded------------	90	Not limited		Not limited		Not limited	
HoA:							
Huntington, occasionally flooded------------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
HuA:							
Huntington, rarely flooded------------	80	Not limited		Not limited		Not limited	
KnA:							
Kanawha, rarely flooded------------	85	Not limited		Not limited		Not limited	
LaB:							
Lakin----------------	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Droughty	0.34
LaC:							
Lakin----------------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Slope	0.63
						Droughty	0.34
LaD:							
Lakin----------------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Too sandy	0.44	Slope	1.00
		Too sandy	0.44			Droughty	0.34
LbB:							
Lakin----------------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Droughty	0.34
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	
LlD:							
Lily-----------------	75	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.46

Table 11b.--Recreation--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
LlE:							
Lily	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.46
LsA:							
Lindside, occasionally flooded	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.03
LtA:							
Lindside, rarely flooded	75	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
LvA:							
Lobdell, occasionally flooded	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.03
LzC:							
Lowell	50	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
Culleoka	35	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Depth to bedrock	0.35
						Content of large stones	0.01
McA:							
McGary	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Shircliff	35	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
MdA:							
Melvin, occasionally flooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Flooding	0.60
MeA:							
Melvin, rarely flooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11b.--Recreation--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
MgB:							
Monongahela---------	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
MoA:							
Moshannon, occasionally flooded-----------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
OmA:							
Omulga--------------	70	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
OmB:							
Omulga--------------	70	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
PgF:							
Peabody-------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Droughty	0.62
Gilpin--------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
PgF3:							
Peabody-------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Depth to bedrock	0.95
						Droughty	0.62
Gilpin--------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
Qu:							
Quarries, sand and gravel-------------	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded-----------	75	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.03
SfA:							
Senecaville, rarely flooded-----------	70	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
SnA:							
Sensabaugh, occasionally flooded-----------	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60

Table 11b.--Recreation--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
SrB:							
Sensabaugh, rarely flooded	75	Not limited		Not limited		Not limited	
StC:							
Shircliff	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
						Depth to saturated zone	0.19
SxB:							
Shircliff	45	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
McGary	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TaA:							
Taggart	70	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
TfA:							
Taggart, rarely flooded	70	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
ThC:							
Tarhollow	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
ThD:							
Tarhollow	75	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Not limited		Not limited		Not limited	
UeC:							
Upshur	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
UeD:							
Upshur	75	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
UgC:							
Upshur	65	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
Gilpin	20	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.46

Table 11b.--Recreation--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
UgD:							
Upshur--------------	55	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
Gilpin--------------	25	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.46
UgD3:							
Upshur--------------	55	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
Gilpin--------------	25	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.46
UgE:							
Upshur--------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
Gilpin--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.46
UgE3:							
Upshur--------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
Gilpin--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.46
VdC:							
Vandalia------------	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
VdD:							
Vandalia------------	75	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
VdE:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
VsD3:							
Vandalia------------	75	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
VsE3:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
VtE:							
Vandalia, very stony	65	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.92				
VxE:							
Vandalia, bouldery--	65	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00				
WsA:							
Wheeling------------	80	Not limited		Not limited		Not limited	
WsB:							
Wheeling------------	85	Not limited		Not limited		Not limited	
WsC:							
Wheeling------------	70	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
WuB:							
Wheeling------------	45	Not limited		Not limited		Not limited	
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
ZoC:							
Zoar----------------	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
						Depth to saturated zone	0.19

Table 12.--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
AeC:										
Allegheny	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
AfA:										
Ashton, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
AfB:										
Ashton, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
AsA:										
Ashton, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
AsB:										
Ashton, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
AuB:										
Ashton, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Gallipolis, rarely flooded	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land	----	----	----	----	----	----	----	----	----	----
CcC:										
Cedarcreek	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
CcE:										
Cedarcreek	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
CdA:										
Chagrin, occasionally flooded	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CfA:										
Chagrin, frequently flooded	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Melvin, frequently flooded	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
ChA:										
Chavies	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
ChB:										
Chavies	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
ChC:										
Chavies	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
CkB:										
Chavies	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land	----	----	----	----	----	----	----	----	----	----
CoA:										
Conotton	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CsB:										
Coolville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Tilsit	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CuD:										
Culleoka	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Lowell	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CuE:										
Culleoka	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Lowell	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DuC:										
Duncannon	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
DuD:										
Duncannon	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DuE:										
Duncannon	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EkA:										
Elk, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
EkB:										
Elk, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GaC:										
Gallia	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GfA:										
Gallipolis	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GfB:										
Gallipolis	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GgA:										
Gallipolis, rarely flooded	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GgB:										
Gallipolis, rarely flooded	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GhB:										
Gallipolis	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land	----	----	----	----	----	----	----	----	----	----
GlF3:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
GlF3:										
Peabody	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor
GmF:										
Gilpin, very stony	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Peabody, very stony	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor
GoF:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Peabody	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
GpC:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GpD:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GpD3:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GpE:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
GpE:										
Upshur------------------	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GpE3:										
Gilpin------------------	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur------------------	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GsA:										
Ginat-------------------	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
GtA:										
Ginat, rarely flooded---	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
GvA:										
Ginat, rarely flooded---	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
GxB:										
Glenford----------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GxC:										
Glenford----------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
HaA:										
Hackers, rarely flooded-	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HaB:										
Hackers, rarely flooded-	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HoA:										
Huntington, occasionally flooded----------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HuA:										
Huntington, rarely flooded----------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
KnA:										
Kanawha, rarely flooded-	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
LaB:										
Lakin-------------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
LaC:										
Lakin-------------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
LaD:										
Lakin-------------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
LbB:										
Lakin-------------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Urban land--------------	----	----	----	----	----	----	----	----	----	----
Ld:										
Landfills---------------	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
LlD:										
Lily--------------------	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LlE:										
Lily--------------------	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LsA:										
Lindside, occasionally flooded----------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LtA:										
Lindside, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LvA:										
Lobdell, occasionally flooded----------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor

Table 12.--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
LzC:										
Lowell	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Culleoka	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
McA:										
McGary	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Shircliff	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MdA:										
Melvin, occasionally flooded	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
MeA:										
Melvin, rarely flooded	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
MgB:										
Monongahela	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MoA:										
Moshannon, occasionally flooded	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OmA:										
Omulga	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OmB:										
Omulga	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PgF:										
Peabody	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
PgF3:										
Peabody	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Fair	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Qu:										
Pits	----	----	----	----	----	----	----	----	----	----
SeA:										
Senecaville, occasionally flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
SfA:										
Senecaville, rarely flooded	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
SnA:										
Sensabaugh, occasionally flooded	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SrB:										
Sensabaugh, rarely flooded	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
StC:										
Shircliff	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
SxB:										
Shircliff	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
McGary	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TaA:										
Taggart	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
TfA:										
Taggart, rarely flooded	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
ThC:										
Tarhollow	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ThD:										
Tarhollow	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ud:										
Udorthents	----	----	----	----	----	----	----	----	----	----
Urban land	----	----	----	----	----	----	----	----	----	----
UeB:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
UeC:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
UeD:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
UgC:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
UgD:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
UgD3:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
UgE:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
UgE3:										
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
VdC:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VdD:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VdE:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VsD3:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VsE3:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VtE:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VxE:										
Vandalia, bouldery	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
WsA:										
Wheeling	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 12.--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	Openland wildlife	Woodland wildlife	Wetland wildlife
WsB:										
Wheeling	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WsC:										
Wheeling	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WuB:										
Wheeling	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land	----	----	----	----	----	----	----	----	----	----
ZoB:										
Zoar	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ZoC:										
Zoar	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 13a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AeC:							
Allegheny	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
AfA:							
Ashton, rarely flooded	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
AfB:							
Ashton, rarely flooded	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
						Slope	0.50
AsA:							
Ashton, rarely flooded	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
AsB:							
Ashton, rarely flooded	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
						Slope	0.50
AuB:							
Ashton, rarely flooded	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Gallipolis, rarely flooded	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
CcE:							
Cedarcreek	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
CdA:							
Chagrin, occasionally flooded	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CfA:							
Chagrin, frequently flooded	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
Melvin, frequently flooded	25	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
ChA:							
Chavies	80	Not limited		Not limited		Not limited	
ChB:							
Chavies	80	Not limited		Not limited		Somewhat limited	
						Slope	0.12
ChC:							
Chavies	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
CkB:							
Chavies	45	Not limited		Not limited		Not limited	
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Not limited		Not limited		Not limited	
CsB:							
Coolville	50	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07	Shrink-swell	0.50	Slope	0.12
						Depth to saturated zone	0.07
Tilsit	30	Not limited		Very limited		Not limited	
				Depth to saturated zone	0.99		
CuD:							
Culleoka	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
Lowell	40	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
				Depth to hard bedrock	0.01		
CuE:							
Culleoka	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35

Table 13a.--Building Site Development--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
CuE:							
Lowell	30	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
				Depth to hard bedrock	0.01		
DuC:							
Duncannon	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to saturated zone	0.61		
DuD:							
Duncannon	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.61		
DuE:							
Duncannon	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.61		
EkA:							
Elk, rarely flooded	65	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.73		
EkB:							
Elk, rarely flooded	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.73	Slope	0.12
GaC:							
Gallia	60	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
GfA:							
Gallipolis	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
GfB:							
Gallipolis	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.12
GgA:							
Gallipolis, rarely flooded	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		

Table 13a.--Building Site Development--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
GgB:							
Gallipolis, rarely flooded	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.12
GhB:							
Gallipolis	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
Urban land	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Peabody	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95		
GmF:							
Gilpin, very stony	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Peabody, very stony	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95		
GoF:							
Gilpin, very stony	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Peabody, very stony	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95		
Rock outcrop	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.46		
Upshur	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00

Table 13a.--Building Site Development--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
GpD:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GpD3:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GpE3:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GsA:							
Ginat	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GtA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GvA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 13a.--Building Site Development--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
GxB:							
Glenford------------	75	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
						Slope	0.12
GxC:							
Glenford------------	75	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
HaA:							
Hackers, rarely flooded------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
HaB:							
Hackers, rarely flooded------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
						Shrink-swell	0.50
HoA:							
Huntington, occasionally flooded------------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
HuA:							
Huntington, rarely flooded------------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
KnA:							
Kanawha, rarely flooded------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
LaB:							
Lakin----------------	75	Not limited		Not limited		Somewhat limited	
						Slope	0.50
LaC:							
Lakin----------------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
LaD:							
Lakin----------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
LbB:							
Lakin----------------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	

Table 13a.--Building Site Development--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
LlD:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
LlE:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
LsA:							
Lindside, occasionally flooded------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
LtA:							
Lindside, rarely flooded------------	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
LvA:							
Lobdell, occasionally flooded------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
LzC:							
Lowell--------------	50	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
				Depth to hard bedrock	0.01		
Culleoka------------	35	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Slope	0.37	Depth to hard bedrock	0.35
McA:							
McGary--------------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Shircliff-----------	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.39	Shrink-swell	1.00	Depth to saturated zone	0.39

Table 13a.--Building Site Development--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
MdA:							
Melvin, occasionally flooded-----------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MeA:							
Melvin, rarely flooded-----------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MgB:							
Monongahela---------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	0.50
						Depth to saturated zone	0.39
MoA:							
Moshannon, occasionally flooded-----------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
OmA:							
Omulga-------------	70	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
OmB:							
Omulga-------------	70	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
						Slope	0.12
PgF:							
Peabody------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95		
Gilpin-------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
PgF3:							
Peabody------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95		

Table 13a.--Building Site Development--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
PgF3:							
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
SfA:							
Senecaville, rarely flooded	70	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
SnA:							
Sensabaugh, occasionally flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
SrB:							
Sensabaugh, rarely flooded	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15	Slope	0.50
StC:							
Shircliff	75	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.39	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.37	Slope	0.37	Depth to saturated zone	0.39
SxB:							
Shircliff	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.39	Shrink-swell	1.00	Depth to saturated zone	0.39
						Slope	0.12
McGary	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 13a.--Building Site Development--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
TaA:							
Taggart	70	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
TfA:							
Taggart, rarely flooded	70	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
ThC:							
Tarhollow	75	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	1.00	Slope	1.00
		Slope	0.37	Depth to saturated zone	0.99	Shrink-swell	0.50
				Slope	0.37		
ThD:							
Tarhollow	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
				Depth to saturated zone	0.99		
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.50
UeC:							
Upshur	75	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00
UeD:							
Upshur	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
UgC:							
Upshur	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00
Gilpin	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.46		
UgD:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 13a.--Building Site Development--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
UgD:							
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
UgD3:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
UgE:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
UgE3:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.46		
VdC:							
Vandalia	75	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00
				Depth to saturated zone	0.15		
VdD:							
Vandalia	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		
VdE:							
Vandalia	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		
VsD3:							
Vandalia	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		

Table 13a.--Building Site Development--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
VsE3:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		
VtE:							
Vandalia, very stony	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		
VxE:							
Vandalia, bouldery--	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.15		
WsA:							
Wheeling------------	80	Not limited		Not limited		Not limited	
WsB:							
Wheeling------------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
WsC:							
Wheeling------------	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
WuB:							
Wheeling------------	45	Not limited		Not limited		Not limited	
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Shrink-swell	0.50
						Depth to saturated zone	0.39
ZoC:							
Zoar----------------	75	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.39	Shrink-swell	0.50	Shrink-swell	0.50
		Slope	0.37	Slope	0.37	Depth to saturated zone	0.39

Table 13b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and 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
AeC:							
Allegheny	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
AfA:							
Ashton, rarely flooded	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
AfB:							
Ashton, rarely flooded	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
AsA:							
Ashton, rarely flooded	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
AsB:							
Ashton, rarely flooded	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
AuB:							
Ashton, rarely flooded	35	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
Gallipolis, rarely flooded	35	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50				
		Flooding	0.40	Cutbanks cave	0.10		
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.84
						Gravel content	0.70
CcE:							
Cedarcreek	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.84
						Gravel content	0.70

Table 13b.--Building Site Development--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
CdA:							
Chagrin, occasionally flooded	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Frost action	0.50	Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
CfA:							
Chagrin, frequently flooded	45	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Frost action	0.50	Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
Melvin, frequently flooded	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
ChA:							
Chavies	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
ChB:							
Chavies	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
ChC:							
Chavies	70	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63		
CkB:							
Chavies	45	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.41
						Droughty	0.18
CsB:							
Coolville	50	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Shrink-swell	0.50	Too clayey	0.24		
		Depth to saturated zone	0.03	Cutbanks cave	0.10		
Tilsit	30	Very limited		Very limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
CuD:							
Culleoka------------	50	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	0.35
		Depth to hard bedrock	0.35	Slope	1.00	Content of large stones	0.01
				Cutbanks cave	0.10		
Lowell--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to hard bedrock	0.01		
CuE:							
Culleoka------------	50	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	0.35
		Depth to hard bedrock	0.35	Slope	1.00	Content of large stones	0.01
				Cutbanks cave	0.10		
Lowell--------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to hard bedrock	0.01		
DuC:							
Duncannon-----------	70	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to saturated zone	0.61		
				Cutbanks cave	0.10		
DuD:							
Duncannon-----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	0.61		
				Cutbanks cave	0.10		
DuE:							
Duncannon-----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	0.61		
				Cutbanks cave	0.10		
EkA:							
Elk, rarely flooded-	65	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.73		
		Flooding	0.40				
				Cutbanks cave	0.10		
EkB:							
Elk, rarely flooded-	75	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.73		
		Flooding	0.40				
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
GaC:							
Gallia--------------	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Slope	0.37	Slope	0.37
		Frost action	0.50	Cutbanks cave	0.10		
		Slope	0.37				
GfA:							
Gallipolis----------	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50	Cutbanks cave	0.10		
GfB:							
Gallipolis----------	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50	Cutbanks cave	0.10		
GgA:							
Gallipolis, rarely flooded------------	75	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50				
		Flooding	0.40	Cutbanks cave	0.10		
GgB:							
Gallipolis, rarely flooded------------	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50				
		Flooding	0.40	Cutbanks cave	0.10		
GhB:							
Gallipolis----------	45	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Peabody-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00			Droughty	0.62
		Frost action	0.50	Too clayey	0.28		
				Cutbanks cave	0.10		
GmF:							
Gilpin, very stony--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
GmF:							
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00			Droughty	0.62
		Frost action	0.50	Too clayey	0.28		
				Cutbanks cave	0.10		
GoF:							
Gilpin, very stony--	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Peabody, very stony-	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00			Droughty	0.62
		Frost action	0.50	Too clayey	0.28		
				Cutbanks cave	0.10		
Rock outcrop--------	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Upshur--------------	25	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
GpD:							
Gilpin--------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Upshur--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
GpD3:							
Gilpin--------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Upshur--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
GpE3:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
GsA:							
Ginat	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
GtA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
GvA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
GxB:							
Glenford	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
GxC:							
Glenford	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				

Table 13b.--Building Site Development--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
HaA:							
Hackers, rarely flooded	85	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
		Flooding	0.40				
HaB:							
Hackers, rarely flooded	90	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
		Flooding	0.40				
HoA:							
Huntington, occasionally flooded	80	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
HuA:							
Huntington, rarely flooded	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
KnA:							
Kanawha, rarely flooded	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
LaB:							
Lakin	75	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.34
LaC:							
Lakin	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Droughty	0.34
LaD:							
Lakin	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.34
LbB:							
Lakin	45	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.34
Urban land	35	Not rated		Not rated		Not rated	
Ld:							
Landfills	95	Not rated		Not rated		Not rated	
LlD:							
Lily	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
LlE:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
LsA:							
Lindside, occasionally flooded------------	85	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00			Depth to saturated zone	0.03
		Depth to	0.03	Flooding	0.60		
		saturated zone	0.03	Cutbanks cave	0.10		
LtA:							
Lindside, rarely flooded------------	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Flooding	0.40				
		Depth to saturated zone	0.03	Cutbanks cave	0.10		
LvA:							
Lobdell, occasionally flooded------------	85	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00			Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Flooding	0.60		
				Cutbanks cave	0.10		
LzC:							
Lowell--------------	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Slope	0.37
		Shrink-swell	0.50	Slope	0.37		
		Slope	0.37	Cutbanks cave	0.10		
				Depth to hard bedrock	0.01		
Culleoka------------	35	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Slope	0.37
		Slope	0.37			Depth to bedrock	0.35
		Depth to hard bedrock	0.35	Slope	0.37	Content of large stones	0.01
				Cutbanks cave	0.10		
McA:							
McGary--------------	45	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	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
Shircliff-----------	35	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	1.00				
		Frost action	0.50	Too clayey	0.12		
		Depth to saturated zone	0.19	Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
MdA:							
Melvin, occasionally flooded	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
MeA:							
Melvin, rarely flooded	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
MgB:							
Monongahela	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Frost action	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
MoA:							
Moshannon, occasionally flooded	80	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
OmA:							
Omulga	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
OmB:							
Omulga	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
PgF:							
Peabody	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00	Too clayey	0.28	Droughty	0.62
		Frost action	0.50	Cutbanks cave	0.10		
			0.50				
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
PgF3:							
Peabody	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00			Droughty	0.62
		Frost action	0.50	Too clayey	0.28		
				Cutbanks cave	0.10		
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00			Depth to saturated zone	0.03
		Shrink-swell	0.50	Flooding	0.60		
		Depth to saturated zone	0.03	Cutbanks cave	0.10		
SfA:							
Senecaville, rarely flooded	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Shrink-swell	0.50				
		Flooding	0.40	Cutbanks cave	0.10		
		Depth to saturated zone	0.03				
SnA:							
Sensabaugh, occasionally flooded	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Depth to saturated zone	0.15		
SrB:							
Sensabaugh, rarely flooded	75	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
		Flooding	0.40	Depth to saturated zone	0.15		
StC:							
Shircliff	75	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.37
		Shrink-swell	1.00			Depth to saturated zone	0.19
		Frost action	0.50	Slope	0.37		
		Slope	0.37	Too clayey	0.12		
		Depth to saturated zone	0.19	Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
SxB:							
Shircliff-----------	45	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	1.00	Too clayey	0.12		
		Frost action	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
McGary--------------	35	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	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
TaA:							
Taggart-------------	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
TfA:							
Taggart, rarely flooded------------	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Flooding	0.40	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
ThC:							
Tarhollow-----------	75	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.37
		Low strength	1.00	Slope	0.37		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Slope	0.37				
ThD:							
Tarhollow-----------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	0.99		
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Ud:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	30	Not rated		Not rated		Not rated	
UeB:							
Upshur--------------	75	Very limited		Somewhat limited		Not limited	
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
UeC:							
Upshur--------------	75	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
UeD:							
Upshur--------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
UgC:							
Upshur	65	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
Gilpin	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
UgD:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
UgD3:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
UgE:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		
UgE3:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.46	Depth to bedrock	0.46
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--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
VdC:							
Vandalia------------	75	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VdD:							
Vandalia------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VdE:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VsD3:							
Vandalia------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VsE3:							
Vandalia------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VtE:							
Vandalia, very stony	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
VxE:							
Vandalia, bouldery--	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.15		
		Frost action	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
WsA:							
Wheeling------------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
WsB:							
Wheeling------------	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		

Table 13b.--Building Site Development--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
WsC:							
Wheeling------------	70	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
WuB:							
Wheeling------------	45	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Frost action	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
ZoC:							
Zoar----------------	75	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	0.37
		Frost action	0.50	Slope	0.37	Depth to saturated zone	0.19
		Slope	0.37	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				

Table 14a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
AeC:					
Allegheny-----------	70	Somewhat limited		Very limited	
		Restricted permeability	0.50	Slope	1.00
		Slope	0.37	Seepage	0.50
AfA:					
Ashton, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
AfB:					
Ashton, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Slope	0.92
				Seepage	0.50
		Flooding	0.40	Flooding	0.40
AsA:					
Ashton, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
AsB:					
Ashton, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Slope	0.92
				Seepage	0.50
		Flooding	0.40	Flooding	0.40
AuB:					
Ashton, rarely flooded-----------	35	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Flooding	0.40
		Flooding	0.40	Slope	0.08
Gallipolis, rarely flooded-----------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Flooding	0.40
				Seepage	0.28
		Flooding	0.40	Slope	0.08
Urban land----------	25	Not rated		Not rated	
CcC:					
Cedarcreek----------	90	Very limited		Very limited	
		Seepage	1.00	Slope	1.00
				Seepage	1.00
				Content of large stones	0.01

Table 14a.--Sanitary Facilities--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
CcE:					
Cedarcreek----------	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
				Content of large stones	0.01
CdA:					
Chagrin, occasionally flooded-----------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
		Depth to saturated zone	0.40		
CfA:					
Chagrin, frequently flooded-----------	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
		Depth to saturated zone	0.40		
Melvin, frequently flooded-----------	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
ChA:					
Chavies-------------	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
ChB:					
Chavies-------------	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
				Slope	0.68
ChC:					
Chavies-------------	70	Very limited		Very limited	
		Seepage	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
CkB:					
Chavies-------------	45	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
				Slope	0.08
Urban land----------	35	Not rated		Not rated	
CoA:					
Conotton------------	75	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		

Table 14a.--Sanitary Facilities--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
CsB:					
Coolville----------	50	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.68
				Seepage	0.53
		Depth to saturated zone	1.00	Depth to saturated zone	0.44
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
Tilsit-------------	30	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Depth to soft bedrock	0.42
		Depth to saturated zone	1.00		
				Slope	0.32
		Depth to bedrock	0.78	Depth to saturated zone	0.19
CuD:					
Culleoka-----------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
		Seepage	1.00	Slope	1.00
				Seepage	1.00
Lowell-------------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to hard bedrock	0.01
		Depth to bedrock	0.32		
CuE:					
Culleoka-----------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
		Seepage	1.00	Slope	1.00
				Seepage	1.00
Lowell-------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to hard bedrock	0.01
		Depth to bedrock	0.32		
DuC:					
Duncannon----------	70	Somewhat limited		Very limited	
		Depth to saturated zone	0.99	Slope	1.00
				Depth to saturated zone	0.71
		Slope	0.63		
		Restricted permeability	0.50	Seepage	0.50
DuD:					
Duncannon----------	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
		Restricted permeability	0.50	Seepage	0.50

Table 14a.--Sanitary Facilities--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
DuE:					
Duncannon-----------	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
		Restricted permeability	0.50	Seepage	0.50
EkA:					
Elk, rarely flooded-	65	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.92
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
EkB:					
Elk, rarely flooded-	75	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.92
		Restricted permeability	0.50	Slope	0.68
				Seepage	0.50
		Flooding	0.40	Flooding	0.40
GaC:					
Gallia--------------	60	Very limited		Very limited	
		Seepage	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
		Slope	0.37		
		Depth to bedrock	0.09		
GfA:					
Gallipolis----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.28
GfB:					
Gallipolis----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Slope	0.68
				Seepage	0.28
GgA:					
Gallipolis, rarely flooded-----------	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Flooding	0.40
				Seepage	0.28
		Flooding	0.40		
GgB:					
Gallipolis, rarely flooded-----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Slope	0.68
				Flooding	0.40
		Flooding	0.40	Seepage	0.28

Table 14a.--Sanitary Facilities--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
GhB:					
Gallipolis----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.28
Urban land----------	30	Not rated		Not rated	
GlF3:					
Gilpin--------------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Peabody-------------	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
GmF:					
Gilpin, very stony--	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Peabody, very stony-	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
GoF:					
Gilpin, very stony--	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Peabody, very stony-	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Rock outcrop--------	10	Not rated		Not rated	
GpC:					
Gilpin--------------	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Upshur--------------	25	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	0.96	Depth to soft bedrock	0.88
		Slope	0.63		

Table 14a.--Sanitary Facilities--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
GpD:					
Gilpin	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Upshur	25	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
GpD3:					
Gilpin	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Upshur	25	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
GpE:					
Gilpin	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Upshur	20	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
GpE3:					
Gilpin	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Upshur	20	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
GsA:					
Ginat	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50

Table 14a.--Sanitary Facilities--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
GtA:					
Ginat, rarely flooded-----------	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
GvA:					
Ginat, rarely flooded-----------	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
GxB:					
Glenford-----------	75	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Restricted permeability	0.72	Slope	0.68
				Seepage	0.27
GxC:					
Glenford-----------	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	0.72	Depth to saturated zone	0.75
		Slope	0.63	Seepage	0.27
HaA:					
Hackers, rarely flooded-----------	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
HaB:					
Hackers, rarely flooded-----------	90	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Slope	0.92
				Seepage	0.50
		Flooding	0.40	Flooding	0.40
HoA:					
Huntington, occasionally flooded-----------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
HuA:					
Huntington, rarely flooded-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40

Table 14a.--Sanitary Facilities--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
KnA:					
Kanawha, rarely flooded-----------	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
LaB:					
Lakin---------------	75	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
				Slope	0.92
LaC:					
Lakin---------------	80	Very limited		Very limited	
		Seepage	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
LaD:					
Lakin---------------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
LbB:					
Lakin---------------	45	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
				Slope	0.68
Urban land----------	35	Not rated		Not rated	
Ld:					
Landfills-----------	95	Not rated		Not rated	
LlD:					
Lily----------------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
LlE:					
Lily----------------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
LsA:					
Lindside, occasionally flooded-----------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	0.27
LtA:					
Lindside, rarely flooded-----------	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Flooding	0.40
		Flooding	0.40	Seepage	0.27

Table 14a.--Sanitary Facilities--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
LvA:					
Lobdell, occasionally flooded	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Restricted permeability	0.50		
LzC:					
Lowell	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	0.37	Depth to hard bedrock	0.01
		Depth to bedrock	0.32		
Culleoka	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage	1.00		
		Slope	0.37	Slope	1.00
				Seepage	1.00
McA:					
McGary	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Shircliff	35	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00		
MdA:					
Melvin, occasionally flooded	85	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
MeA:					
Melvin, rarely flooded	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
				Flooding	0.40
		Flooding	0.40		
MgB:					
Monongahela	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.92
				Depth to saturated zone	0.75
		Restricted permeability	1.00	Seepage	0.50

Table 14a.--Sanitary Facilities--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
MoA:					
Moshannon, occasionally flooded	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
		Depth to saturated zone	0.40		
OmA:					
Omulga	70	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
OmB:					
Omulga	70	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.53
PgF:					
Peabody	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Gilpin	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
PgF3:					
Peabody	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Gilpin	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Qu:					
Quarries, sand and gravel	100	Not rated		Not rated	
SeA:					
Senecaville, occasionally flooded	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	0.50

Table 14a.--Sanitary Facilities--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
SfA:					
Senecaville, rarely flooded------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	0.50
				Flooding	0.40
		Flooding	0.40		
SnA:					
Sensabaugh, occasionally flooded------------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	0.40		
SrB:					
Sensabaugh, rarely flooded------------	75	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Slope	0.92
				Flooding	0.40
		Flooding	0.40		
StC:					
Shircliff-----------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to saturated zone	0.75
		Depth to saturated zone	1.00		
		Slope	0.37		
SxB:					
Shircliff-----------	45	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Slope	0.68
McGary--------------	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.32
TaA:					
Taggart-------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	0.53
TfA:					
Taggart, rarely flooded------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	0.53
				Flooding	0.40
		Flooding	0.40		

Table 14a.--Sanitary Facilities--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
ThC:					
Tarhollow-----------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Slope	0.37	Depth to saturated zone	0.04
		Depth to bedrock	0.25		
ThD:					
Tarhollow-----------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Slope	1.00	Depth to saturated zone	0.04
		Depth to bedrock	0.25		
Ud:					
Udorthents----------	50	Not rated		Not rated	
Urban land----------	30	Not rated		Not rated	
UeB:					
Upshur--------------	75	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.92
		Depth to bedrock	0.96	Depth to soft bedrock	0.88
UeC:					
Upshur--------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	0.96	Depth to soft bedrock	0.88
		Slope	0.63		
UeD:					
Upshur--------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
UgC:					
Upshur--------------	65	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	0.96	Depth to soft bedrock	0.88
		Slope	0.63		
Gilpin--------------	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
UgD:					
Upshur--------------	55	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		

Table 14a.--Sanitary Facilities--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
UgD:					
Gilpin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
UgD3:					
Upshur	55	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
Gilpin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
UgE:					
Upshur	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
Gilpin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
UgE3:					
Upshur	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.88
		Depth to bedrock	0.96		
Gilpin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
VdC:					
Vandalia	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	0.63		
		Depth to saturated zone	0.40		
VdD:					
Vandalia	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		

Table 14a.--Sanitary Facilities--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
VdE:					
Vandalia------------	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		
VsD3:					
Vandalia------------	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		
VsE3:					
Vandalia------------	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		
VtE:					
Vandalia, very stony	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		
VxE:					
Vandalia, bouldery--	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		
		Depth to saturated zone	0.40		
WsA:					
Wheeling------------	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Restricted permeability	0.50		
WsB:					
Wheeling------------	85	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Restricted permeability	0.50	Slope	0.68
WsC:					
Wheeling------------	70	Very limited		Very limited	
		Seepage	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
		Restricted permeability	0.50		

Table 14a.--Sanitary Facilities--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
WuB:					
Wheeling------------	45	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Restricted permeability	0.50	Slope	0.08
Urban land----------	35	Not rated		Not rated	
ZoB:					
Zoar----------------	75	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.92
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
ZoC:					
Zoar----------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slope	0.37		

Table 14b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and 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
AeC:							
Allegheny	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
AfA:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
AfB:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
AsA:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
AsB:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
AuB:							
Ashton, rarely flooded	35	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
Gallipolis, rarely flooded	35	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40	Depth to saturated zone	0.24
		Flooding	0.40				
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Gravel content	0.99
						Seepage	0.21
CcE:							
Cedarcreek	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	0.99
						Seepage	0.21
CdA:							
Chagrin, occasionally flooded	75	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Table 14b.--Sanitary Facilities--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
CfA:							
Chagrin, frequently flooded	45	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Melvin, frequently flooded	25	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	Too clayey	0.50
		Too clayey	0.50				
ChA:							
Chavies	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
ChB:							
Chavies	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
ChC:							
Chavies	70	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Seepage	0.50
CkB:							
Chavies	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
Urban land	35	Not rated		Not rated		Not rated	
CoA:							
Conotton	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
						Gravel content	1.00
CsB:							
Coolville	50	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
		Too clayey	1.00	Depth to bedrock	0.42	Hard to compact	1.00
		Depth to saturated zone	0.95			Depth to saturated zone	0.68
						Depth to bedrock	0.42
Tilsit	30	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.42	Depth to saturated zone	0.47
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to bedrock	0.42
CuD:							
Culleoka	50	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	1.00	Seepage	1.00	Seepage	0.22
Lowell	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.01	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	0.01

Table 14b.--Sanitary Facilities--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
CuE:							
Culleoka	50	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	1.00	Seepage	1.00	Seepage	0.22
Lowell	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.01	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	0.01
DuC:							
Duncannon	70	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.63
		Slope	0.63	Slope	0.63		
DuD:							
Duncannon	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00		
DuE:							
Duncannon	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00		
EkA:							
Elk, rarely flooded	65	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
EkB:							
Elk, rarely flooded	75	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
GaC:							
Gallia	60	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.37	Slope	0.37
		Seepage	1.00				
		Slope	0.37				
GfA:							
Gallipolis	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.24
GfB:							
Gallipolis	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.24

Table 14b.--Sanitary Facilities--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
GgA:							
Gallipolis, rarely flooded	75	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40	Depth to saturated zone	0.24
		Flooding	0.40				
GgB:							
Gallipolis, rarely flooded	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40	Depth to saturated zone	0.24
		Flooding	0.40				
GhB:							
Gallipolis	45	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.24
Urban land	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Peabody	20	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.87
GmF:							
Gilpin, very stony	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Peabody, very stony	20	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.87
GoF:							
Gilpin, very stony	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Peabody, very stony	20	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.87
Rock outcrop	10	Not rated		Not rated		Not rated	

Table 14b.--Sanitary Facilities--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
GpC:							
Gilpin	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.01
Upshur	25	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	0.88
						Slope	0.63
GpD:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
GpD3:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
GpE3:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88

Table 14b.--Sanitary Facilities--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
GsA:							
Ginat	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
GtA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
GvA:							
Ginat, rarely flooded	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
GxB:							
Glenford	75	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
GxC:							
Glenford	75	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
HaA:							
Hackers, rarely flooded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
HaB:							
Hackers, rarely flooded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
HoA:							
Huntington, occasionally flooded	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Too clayey	0.50				
HuA:							
Huntington, rarely flooded	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				

Table 14b.--Sanitary Facilities--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
KnA:							
Kanawha, rarely flooded-----------	85	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
LaB:							
Lakin---------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
LaC:							
Lakin---------------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too sandy	0.50			Too sandy	0.50
LaD:							
Lakin---------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
LbB:							
Lakin---------------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	
LlD:							
Lily----------------	75	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	1.00	Seepage	1.00	Seepage	0.50
LlE:							
Lily----------------	75	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	1.00	Seepage	1.00	Seepage	0.50
LsA:							
Lindside, occasionally flooded-----------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
LtA:							
Lindside, rarely flooded-----------	75	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Flooding	0.40	Flooding	0.40		

Table 14b.--Sanitary Facilities--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
LvA:							
Lobdell, occasionally flooded	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.21
		Seepage	1.00	Seepage	1.00		
LzC:							
Lowell	50	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.37	Too clayey	1.00
		Too clayey	1.00	Depth to bedrock	0.01	Slope	0.37
		Slope	0.37			Depth to bedrock	0.01
Culleoka	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Slope	0.37
		Slope	0.37	Slope	0.37	Seepage	0.22
McA:							
McGary	45	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			Too clayey	1.00
Shircliff	35	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
		Depth to saturated zone	0.99			Depth to saturated zone	0.86
MdA:							
Melvin, occasionally flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
MeA:							
Melvin, rarely flooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
MgB:							
Monongahela	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
MoA:							
Moshannon, occasionally flooded	80	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Table 14b.--Sanitary Facilities--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
OmA:							
Omulga	70	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
OmB:							
Omulga	70	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
PgF:							
Peabody	45	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.87
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
PgF3:							
Peabody	45	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.87
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
SfA:							
Senecaville, rarely flooded	70	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Flooding	0.40	Flooding	0.40		
SnA:							
Sensabaugh, occasionally flooded	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.21
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.15
		Seepage	1.00	Seepage	1.00		

Table 14b.--Sanitary Facilities--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
SrB:							
Sensabaugh, rarely flooded	75	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.21
		Seepage	1.00	Seepage	1.00	Gravel content	0.15
		Flooding	0.40	Flooding	0.40		
StC:							
Shircliff	75	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
		Depth to saturated zone	0.99	Slope	0.37	Depth to saturated zone	0.86
		Slope	0.37			Slope	0.37
SxB:							
Shircliff	45	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
		Depth to saturated zone	0.99			Depth to saturated zone	0.86
McGary	35	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			Too clayey	1.00
TaA:							
Taggart	70	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
TfA:							
Taggart, rarely flooded	70	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
ThC:							
Tarhollow	75	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.37	Too clayey	0.50
		Depth to saturated zone	0.68	Depth to saturated zone	0.04	Slope	0.37
		Too clayey	0.50			Depth to saturated zone	0.24
		Slope	0.37				
ThD:							
Tarhollow	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to saturated zone	0.04	Too clayey	0.50
		Depth to saturated zone	0.68			Depth to saturated zone	0.24
		Too clayey	0.50				
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	

Table 14b.--Sanitary Facilities--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
UeB:							
Upshur	75	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
UeC:							
Upshur	75	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	0.88
						Slope	0.63
UeD:							
Upshur	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
UgC:							
Upshur	65	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	0.88
						Slope	0.63
Gilpin	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.01
UgD:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
UgD3:							
Upshur	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
UgE:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88

Table 14b.--Sanitary Facilities--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
UgE:							
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
UgE3:							
Upshur	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
						Gravel content	0.01
VdC:							
Vandalia	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Slope	0.63
		Slope	0.63				
VdD:							
Vandalia	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
VdE:							
Vandalia	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
VsD3:							
Vandalia	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
VsE3:							
Vandalia	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
VtE:							
Vandalia, very stony	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				

Table 14b.--Sanitary Facilities--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
VxE:							
Vandalia, bouldery--	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
WsA:							
Wheeling------------	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Seepage	1.00
WsB:							
Wheeling------------	85	Very limited		Not limited		Very limited	
		Seepage	1.00			Seepage	1.00
WsC:							
Wheeling------------	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Slope	0.63	Seepage	1.00
		Slope	0.63			Slope	0.63
WuB:							
Wheeling------------	45	Very limited		Not limited		Very limited	
		Seepage	1.00			Seepage	1.00
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
ZoC:							
Zoar----------------	75	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37

Table 15.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AeC:							
Allegheny	70	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Low content of organic matter	0.12			Slope	0.63
AfA:							
Ashton, rarely flooded	80	Fair		Good		Good	
		Water erosion	0.90				
		Low content of organic matter	0.92				
AfB:							
Ashton, rarely flooded	80	Fair		Good		Good	
		Water erosion	0.90				
		Low content of organic matter	0.92				
AsA:							
Ashton, rarely flooded	80	Fair		Good		Good	
		Water erosion	0.90				
		Low content of organic matter	0.92				
AsB:							
Ashton, rarely flooded	80	Fair		Good		Good	
		Water erosion	0.90				
		Low content of organic matter	0.92				
AuB:							
Ashton, rarely flooded	35	Fair		Good		Good	
		Water erosion	0.90				
		Low content of organic matter	0.92				
Gallipolis, rarely flooded	35	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
		Too acid	0.32	Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Water erosion	0.99				
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Fair		Fair		Poor	
		Low content of organic matter	0.01	Cobble content	0.91	Hard to reclaim	0.00
						Rock fragments	0.00
		Too acid	0.50			Too acid	0.59

Table 15.--Construction Materials--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
CcE:							
Cedarcreek----------	90	Fair		Poor		Poor	
		Low content of organic matter	0.01	Slope	0.00	Hard to reclaim	0.00
		Too acid	0.50	Cobble content	0.91	Rock fragments	0.00
						Slope	0.00
						Too acid	0.59
CdA:							
Chagrin, occasionally flooded------------	75	Fair		Good		Fair	
		Low content of organic matter	0.82			Rock fragments	0.97
CfA:							
Chagrin, frequently flooded------------	45	Fair		Good		Fair	
		Low content of organic matter	0.82			Rock fragments	0.97
Melvin, frequently flooded------------	25	Fair		Poor		Poor	
		Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
ChA:							
Chavies-------------	80	Fair		Good		Fair	
		Low content of organic matter	0.12			Too acid	0.88
		Too acid	0.32			Rock fragments	0.97
ChB:							
Chavies-------------	80	Fair		Good		Fair	
		Low content of organic matter	0.12			Too acid	0.88
		Too acid	0.32			Rock fragments	0.97
ChC:							
Chavies-------------	70	Fair		Good		Fair	
		Low content of organic matter	0.12			Slope	0.37
		Too acid	0.32			Too acid	0.88
						Rock fragments	0.97
CkB:							
Chavies-------------	45	Fair		Good		Fair	
		Low content of organic matter	0.12			Too acid	0.88
		Too acid	0.32			Rock fragments	0.97
Urban land----------	35	Not rated		Not rated		Not rated	
CoA:							
Conotton------------	75	Fair		Good		Poor	
		Low content of organic matter	0.08			Hard to reclaim,	0.00
		Droughty	0.48			Rock fragments	0.00
		Too acid	0.68				

Table 15.--Construction Materials--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
CsB:							
Coolville-----------	50	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.58	Too clayey	0.00
		Too acid	0.12	Depth to saturated zone	0.76	Too acid	0.59
		Low content of organic matter	0.18	Shrink-swell	0.89	Depth to saturated zone	0.76
Tilsit--------------	30	Fair		Fair		Fair	
		Low content of organic matter	0.06	Depth to bedrock	0.58	Depth to saturated zone	0.89
		Too acid	0.12	Depth to saturated zone	0.89	Too acid	0.92
		Water erosion	0.90				
CuD:							
Culleoka------------	50	Fair		Poor		Poor	
		Low content of organic matter	0.50	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.65	Depth to bedrock	0.00	Rock fragments	0.12
		Droughty	0.70	Slope	0.50	Depth to bedrock	0.65
		Too acid	0.74				
Lowell--------------	40	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.88	Slope	0.50	Too clayey	0.00
		Water erosion	0.99	Shrink-swell	0.87	Hard to reclaim (rock fragments)	0.88
		Too acid	0.99	Depth to bedrock	0.99		
CuE:							
Culleoka------------	50	Fair		Poor		Poor	
		Low content of organic matter	0.50	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.65	Slope	0.00	Rock fragments	0.12
		Droughty	0.70	Depth to bedrock	0.00	Depth to bedrock	0.65
		Too acid	0.74				
Lowell--------------	30	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Low strength	0.00	Slope	0.00
		Water erosion	0.99	Shrink-swell	0.87	Hard to reclaim (rock fragments)	0.85
		Too acid	0.99	Depth to bedrock	0.99		
DuC:							
Duncannon-----------	70	Fair		Good		Fair	
		Too acid	0.74			Slope	0.37
		Water erosion	0.90				
		Low content of organic matter	0.92				
DuD:							
Duncannon-----------	70	Fair		Fair		Poor	
		Too acid	0.74	Slope	0.50	Slope	0.00
		Water erosion	0.90				
		Low content of organic matter	0.92				
DuE:							
Duncannon-----------	60	Fair		Poor		Poor	
		Too acid	0.74	Slope	0.00	Slope	0.00
		Water erosion	0.90				
		Low content of organic matter	0.92				

Table 15.--Construction Materials--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
EkA:							
Elk, rarely flooded-	65	Fair		Good		Good	
		Low content of organic matter	0.50				
		Water erosion	0.90				
EkB:							
Elk, rarely flooded-	75	Fair		Good		Good	
		Low content of organic matter	0.50				
		Water erosion	0.90				
GaC:							
Gallia--------------	60	Fair		Fair		Fair	
		Too acid	0.68	Shrink-swell	0.87	Slope	0.63
		Water erosion	0.99			Rock fragments	0.72
GfA:							
Gallipolis----------	80	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
				Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Too acid	0.32				
		Water erosion	0.99				
GfB:							
Gallipolis----------	80	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
				Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Too acid	0.32				
		Water erosion	0.99				
GgA:							
Gallipolis, rarely flooded------------	75	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
				Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Too acid	0.32				
		Water erosion	0.99				
GgB:							
Gallipolis, rarely flooded------------	80	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
				Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Too acid	0.32				
		Water erosion	0.99				
GhB:							
Gallipolis----------	45	Fair		Fair		Fair	
		Low content of organic matter	0.12	Shrink-swell	0.94	Too acid	0.88
				Depth to saturated zone	0.98	Depth to saturated zone	0.98
		Too acid	0.32				
		Water erosion	0.99				
Urban land----------	30	Not rated		Not rated		Not rated	

Table 15.--Construction Materials--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
GlF3:							
Gilpin	45	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.37	Slope	0.00	Slope	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Peabody	20	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.05	Low strength	0.00	Rock fragments	0.00
		Too acid	0.68	Shrink-swell	0.12	Depth to bedrock	0.05
		Low content of organic matter	0.88				
GmF:							
Gilpin, very stony	45	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.37	Slope	0.00	Slope	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Peabody, very stony	20	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.05	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.68	Shrink-swell	0.12	Depth to bedrock	0.05
		Low content of organic matter	0.88				
GoF:							
Gilpin, very stony	40	Fair		Poor		Poor	
		Low content of organic matter	0.32	Slope	0.00	Slope	0.00
		Droughty	0.37	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Peabody, very stony	20	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Droughty	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.05	Slope	0.00	Rock fragments	0.00
		Too acid	0.68	Shrink-swell	0.12	Depth to bedrock	0.05
		Low content of organic matter	0.88				
Rock outcrop	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin	55	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.37			Slope	0.37
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59

Table 15.--Construction Materials--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
GpC:							
Upshur	25	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Slope	0.37
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
GpD:							
Gilpin	55	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.37	Slope	0.50	Slope	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Upshur	25	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Slope	0.00
		Too acid	0.68	Slope	0.50		
		Droughty	0.94				
		Water erosion	0.99				
GpD3:							
Gilpin	55	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.37	Slope	0.50	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Upshur	25	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
		Too acid	0.68	Slope	0.50		
		Droughty	0.94				
		Water erosion	0.99				
GpE:							
Gilpin	50	Fair		Poor		Poor	
		Low content of organic matter	0.32	Slope	0.00	Slope	0.00
		Droughty	0.37	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Upshur	20	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Depth to bedrock	0.12	Too clayey	0.00
		Too acid	0.68	Shrink-swell	0.12		
		Droughty	0.94				
		Water erosion	0.99				

Table 15.--Construction Materials--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
GpE3:							
Gilpin--------------	50	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
				Slope	0.00	Slope	0.00
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
Upshur--------------	20	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Depth to bedrock	0.12	Too clayey	0.00
				Shrink-swell	0.12		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
GsA:							
Ginat---------------	85	Fair		Poor		Poor	
		Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
						Too acid	0.88
GtA:							
Ginat, rarely flooded------------	80	Fair		Poor		Poor	
		Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
						Too acid	0.88
GvA:							
Ginat, rarely flooded------------	80	Fair		Poor		Poor	
		Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
						Too acid	0.88
GxB:							
Glenford------------	75	Fair		Fair		Fair	
		Low content of organic matter	0.32	Depth to saturated zone	0.53	Depth to saturated zone	0.53
		Too acid	0.54	Shrink-swell	0.91	Too acid	0.98
		Water erosion	0.90				
GxC:							
Glenford------------	75	Fair		Fair		Fair	
		Low content of organic matter	0.32	Depth to saturated zone	0.53	Slope	0.37
						Depth to saturated zone	0.53
		Too acid	0.54	Shrink-swell	0.91		
		Water erosion	0.90			Too acid	0.98
HaA:							
Hackers, rarely flooded------------	85	Fair		Fair		Good	
		Low content of organic matter	0.32	Shrink-swell	0.91		
		Too acid	0.84				
		Water erosion	0.99				

Table 15.--Construction Materials--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
HaB:							
Hackers, rarely flooded	90	Fair		Fair		Good	
		Low content of organic matter	0.32	Shrink-swell	0.91		
		Too acid	0.84				
		Water erosion	0.99				
HoA:							
Huntington, occasionally flooded	80	Fair		Good		Good	
		Low content of organic matter	0.98				
HuA:							
Huntington, rarely flooded	80	Fair		Good		Good	
		Low content of organic matter	0.98				
KnA:							
Kanawha, rarely flooded	85	Fair		Good		Fair	
		Low content of organic matter	0.32			Rock fragments	0.97
		Too acid	0.74				
LaB:							
Lakin	75	Fair		Good		Fair	
		Low content of organic matter	0.32			Too sandy	0.78
		Too acid	0.54			Too acid	0.98
		Too sandy	0.78				
LaC:							
Lakin	80	Fair		Good		Fair	
		Low content of organic matter	0.32			Slope	0.37
						Too sandy	0.78
		Too acid	0.54			Too acid	0.98
		Too sandy	0.78				
LaD:							
Lakin	85	Fair		Fair		Poor	
		Low content of organic matter	0.32	Slope	0.50	Slope	0.00
						Too sandy	0.78
		Too acid	0.54			Too acid	0.98
		Too sandy	0.78				
LbB:							
Lakin	45	Fair		Good		Fair	
		Low content of organic matter	0.32			Too sandy	0.78
						Too acid	0.98
		Too acid	0.54				
		Too sandy	0.78				
Urban land	35	Not rated		Not rated		Not rated	
Ld:							
Landfills	95	Not rated		Not rated		Not rated	

Table 15.--Construction Materials--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
LlD:							
Lily----------------	75	Fair		Poor		Poor	
		Droughty	0.37	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.50	Slope	0.50	Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
LlE:							
Lily----------------	75	Fair		Poor		Poor	
		Droughty	0.37	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Depth to bedrock	0.54
		Low content of organic matter	0.50			Too acid	0.59
		Depth to bedrock	0.54				
LsA:							
Lindside, occasionally flooded------------	85	Fair		Fair		Fair	
		Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
		Water erosion	0.99				
LtA:							
Lindside, rarely flooded------------	75	Fair		Fair		Fair	
		Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
		Water erosion	0.99				
LvA:							
Lobdell, occasionally flooded------------	85	Fair		Fair		Fair	
		Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
		Too acid	0.97				
		Water erosion	0.99				
LzC:							
Lowell--------------	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.87	Slope	0.63
				Depth to bedrock	0.99	Hard to reclaim (rock fragments)	0.88
		Water erosion	0.99				
		Too acid	0.99				
Culleoka------------	35	Fair		Poor		Fair	
		Low content of organic matter	0.50	Depth to bedrock	0.00	Rock fragments	0.12
				Low strength	0.00	Slope	0.63
		Depth to bedrock	0.65			Depth to bedrock	0.65
		Droughty	0.70				
		Too acid	0.74				
McA:							
McGary--------------	45	Poor		Poor		Poor	
		Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.00
		Water erosion	0.90	Shrink-swell	0.12		

Table 15.--Construction Materials--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
McA:							
Shircliff-----------	35	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.24	Shrink-swell	0.12	Depth to saturated zone	0.53
		Water erosion	0.90	Depth to saturated zone	0.53		
		Too acid	0.97				
MdA:							
Melvin, occasionally flooded------------	85	Fair		Poor		Poor	
		Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
MeA:							
Melvin, rarely flooded------------	85	Fair		Poor		Poor	
		Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90				
MgB:							
Monongahela---------	80	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to saturated zone	0.53	Depth to saturated zone	0.53
		Too acid	0.32			Too acid	0.88
		Water erosion	0.90				
MoA:							
Moshannon, occasionally flooded------------	80	Fair		Good		Good	
		Low content of organic matter	0.92				
		Too acid	0.95				
		Water erosion	0.99				
OmA:							
Omulga--------------	70	Fair		Fair		Fair	
		Too acid	0.12	Depth to saturated zone	0.53	Depth to saturated zone	0.53
		Low content of organic matter	0.12	Shrink-swell	0.87	Too acid	0.59
		Water erosion	0.90				
OmB:							
Omulga--------------	70	Fair		Fair		Fair	
		Too acid	0.12	Depth to saturated zone	0.53	Depth to saturated zone	0.53
		Low content of organic matter	0.12	Shrink-swell	0.87	Too acid	0.59
		Water erosion	0.90				
PgF:							
Peabody-------------	45	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Rock fragments	0.00
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.05	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.68	Shrink-swell	0.12	Depth to bedrock	0.05
		Low content of organic matter	0.88				

Table 15.--Construction Materials--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
PgF:							
Gilpin	35	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.37	Slope	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
PgF3:							
Peabody	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.05	Low strength	0.00	Rock fragments	0.00
		Too acid	0.68	Shrink-swell	0.12	Depth to bedrock	0.05
		Low content of organic matter	0.88				
Gilpin	35	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.37	Slope	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Fair		Fair		Fair	
		Low content of organic matter	0.08	Depth to saturated zone	0.76	Depth to saturated zone	0.76
		Too acid	0.84				
		Water erosion	0.99				
SfA:							
Senecaville, rarely flooded	70	Fair		Fair		Fair	
		Low content of organic matter	0.08	Depth to saturated zone	0.76	Depth to saturated zone	0.76
		Too acid	0.84				
		Water erosion	0.99				
SnA:							
Sensabaugh, occasionally flooded	85	Fair		Good		Poor	
		Low content of organic matter	0.08			Hard to reclaim	0.00
						Rock fragments	0.03
SrB:							
Sensabaugh, rarely flooded	75	Fair		Good		Poor	
		Low content of organic matter	0.08			Hard to reclaim	0.00
						Rock fragments	0.03

Table 15.--Construction Materials--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
StC:							
Shircliff-----------	75	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of	0.24	Shrink-swell	0.12	Depth to	0.53
		organic matter		Depth to	0.53	saturated zone	
		Water erosion	0.90	saturated zone		Slope	0.63
		Too acid	0.97				
SxB:							
Shircliff-----------	45	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of	0.24	Shrink-swell	0.12	Depth to	0.53
		organic matter		Depth to	0.53	saturated zone	
		Water erosion	0.90	saturated zone			
		Too acid	0.97				
McGary--------------	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to	0.00	Depth to	0.00
		Low content of	0.24	saturated zone		saturated zone	
		organic matter		Low strength	0.00	Too clayey	0.00
		Water erosion	0.90	Shrink-swell	0.12		
TaA:							
Taggart-------------	70	Fair		Fair		Fair	
		Low content of	0.18	Depth to	0.53	Depth to	0.53
		organic matter		saturated zone		saturated zone	
		Too acid	0.32			Too acid	0.88
		Water erosion	0.99			Rock fragments	0.97
TfA:							
Taggart, rarely							
flooded-----------	70	Fair		Fair		Fair	
		Low content of	0.18	Depth to	0.53	Depth to	0.53
		organic matter		saturated zone		saturated zone	
		Too acid	0.32			Too acid	0.88
		Water erosion	0.99			Rock fragments	0.97
ThC:							
Tarhollow-----------	75	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Slope	0.63
		Low content of	0.75	Shrink-swell	0.62	Hard to reclaim	0.88
		organic matter		Depth to	0.98	Depth to	0.98
		Water erosion	0.90	saturated zone		saturated zone	
						Too acid	0.98
ThD:							
Tarhollow-----------	75	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Slope	0.00
		Low content of	0.75	Slope	0.50	Hard to reclaim	0.88
		organic matter		Shrink-swell	0.62	Depth to	0.98
		Water erosion	0.90	Depth to	0.98	saturated zone	0.98
				saturated zone		Too acid	
Ud:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	30	Not rated		Not rated		Not rated	

Table 15.--Construction Materials--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
UeB:							
Upshur	75	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
UeC:							
Upshur	75	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Slope	0.37
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
UeD:							
Upshur	75	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
				Slope	0.50		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
UgC:							
Upshur	65	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Slope	0.37
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
Gilpin	20	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
						Slope	0.37
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
UgD:							
Upshur	55	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
				Slope	0.50		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
Gilpin	25	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Rock fragments	0.00
				Slope	0.50	Slope	0.00
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				

Table 15.--Construction Materials--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
UgD3:							
Upshur--------------	55	Poor		Fair		Poor	
		Too clayey	0.00	Depth to bedrock	0.12	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
				Slope	0.50		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
Gilpin--------------	25	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
				Slope	0.50	Rock fragments	0.00
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
UgE:							
Upshur--------------	50	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Depth to bedrock	0.12	Too clayey	0.00
				Shrink-swell	0.12		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
Gilpin--------------	25	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.00
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
UgE3:							
Upshur--------------	50	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Depth to bedrock	0.12	Too clayey	0.00
				Shrink-swell	0.12		
		Too acid	0.68				
		Droughty	0.94				
		Water erosion	0.99				
Gilpin--------------	25	Fair		Poor		Poor	
		Low content of organic matter	0.32	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.00
		Droughty	0.37			Depth to bedrock	0.54
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.54				
VdC:							
Vandalia------------	75	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Too clayey	0.00
		Low content of organic matter	0.32			Rock fragments	0.28
						Slope	0.37
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
VdD:							
Vandalia------------	75	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Slope	0.00
		Low content of organic matter	0.32	Slope	0.50	Too clayey	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				

Table 15.--Construction Materials--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
VdE:							
Vandalia------------	65	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
VsD3:							
Vandalia------------	75	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Slope	0.00
		Low content of organic matter	0.32	Slope	0.50	Too clayey	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
VsE3:							
Vandalia------------	65	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
VtE:							
Vandalia, very stony	65	Poor		Fair		Poor	
		Too clayey	0.00	Slope	0.08	Slope	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Too clayey	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
VxE:							
Vandalia, bouldery--	65	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Slope	0.00
						Rock fragments	0.28
		Too acid	0.54			Too acid	0.98
		Water erosion	0.99				
WsA:							
Wheeling------------	80	Fair		Good		Fair	
		Low content of organic matter	0.32			Rock fragments	0.88
		Too acid	0.74				
		Water erosion	0.99				
WsB:							
Wheeling------------	85	Fair		Good		Fair	
		Low content of organic matter	0.32			Rock fragments	0.88
		Too acid	0.74				
		Water erosion	0.99				
WsC:							
Wheeling------------	70	Fair		Good		Fair	
		Low content of organic matter	0.32			Slope	0.37
						Rock fragments	0.88
		Too acid	0.74				
		Water erosion	0.99				

Table 15.--Construction Materials--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
WuB:							
Wheeling	45	Fair		Good		Fair	
		Low content of organic matter	0.32			Rock fragments	0.88
		Too acid	0.74				
		Water erosion	0.99				
Urban land	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar	75	Fair		Fair		Fair	
		Too clayey	0.18	Depth to saturated zone	0.53	Too clayey	0.11
		Low content of organic matter	0.18	Shrink-swell	0.87	Depth to saturated zone	0.53
		Too acid	0.50			Too acid	0.88
		Water erosion	0.90				
ZoC:							
Zoar	75	Fair		Fair		Fair	
		Too clayey	0.18	Depth to saturated zone	0.53	Too clayey	0.11
		Low content of organic matter	0.18	Shrink-swell	0.87	Depth to saturated zone	0.53
		Too acid	0.50			Slope	0.63
		Water erosion	0.90			Too acid	0.88

Table 16.--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		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
AeC:							
Allegheny	70	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Seepage	0.02		
AfA:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.26	Depth to water	1.00
AfB:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.26	Depth to water	1.00
		Slope	0.68				
AsA:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.18	Depth to water	1.00
AsB:							
Ashton, rarely flooded	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.18	Depth to water	1.00
		Slope	0.68				
AuB:							
Ashton, rarely flooded	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.18	Depth to water	1.00
Gallipolis, rarely flooded	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10
Urban land	25	Not rated		Not rated		Not rated	
CcC:							
Cedarcreek	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.19	Depth to water	1.00
		Slope	0.92				
CcE:							
Cedarcreek	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.19	Depth to water	1.00
		Seepage	1.00				
CdA:							
Chagrin, occasionally flooded	75	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
				Seepage	0.01	Slow refill	0.30

Table 16.--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
CfA:							
Chagrin, frequently flooded-----------	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
				Seepage	0.01	Slow refill	0.30
Melvin, frequently flooded-----------	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.94		
ChA:							
Chavies------------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.23		
ChB:							
Chavies------------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.32	Seepage	0.23		
ChC:							
Chavies------------	70	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.23		
CkB:							
Chavies------------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.23		
Urban land----------	35	Not rated		Not rated		Not rated	
CoA:							
Conotton-----------	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
CsB:							
Coolville----------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.32	Depth to saturated zone	0.95	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.06		
Tilsit-------------	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.87	Depth to water	1.00
		Slope	0.08	Depth to saturated zone	0.86		
		Depth to bedrock	0.01	Thin layer	0.22		
CuD:							
Culleoka-----------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
Lowell-------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.21	Depth to water	1.00
		Seepage	0.04	Thin layer	0.01		
		Depth to bedrock	0.01				

Table 16.--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
CuE:							
Culleoka	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
Lowell	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.21	Depth to water	1.00
		Seepage	0.04	Thin layer	0.01		
		Depth to bedrock	0.01				
DuC:							
Duncannon	70	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Piping	1.00	Depth to saturated zone	0.81
		Seepage	0.70			Slow refill	0.30
						Cutbanks cave	0.10
DuD:							
Duncannon	70	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Piping	1.00	Depth to saturated zone	0.81
		Seepage	0.70			Slow refill	0.30
						Cutbanks cave	0.10
DuE:							
Duncannon	60	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Piping	1.00	Depth to saturated zone	0.81
		Seepage	0.70			Slow refill	0.30
						Cutbanks cave	0.10
EkA:							
Elk, rarely flooded	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Piping	0.98	Depth to saturated zone	0.68
				Depth to saturated zone	0.02	Slow refill	0.30
						Cutbanks cave	0.10
EkB:							
Elk, rarely flooded	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Piping	0.98	Depth to saturated zone	0.68
		Slope	0.32	Depth to saturated zone	0.02	Slow refill	0.30
						Cutbanks cave	0.10
GaC:							
Gallia	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.71	Depth to water	1.00
		Slope	1.00				
GfA:							
Gallipolis	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10
GfB:							
Gallipolis	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
		Slope	0.32	Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10

Table 16.--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
GgA:							
Gallipolis, rarely flooded-----------	75	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10
GgB:							
Gallipolis, rarely flooded-----------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
		Slope	0.32	Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10
GhB:							
Gallipolis----------	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Piping	0.99	Slow refill	0.46
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
						Cutbanks cave	0.10
Urban land----------	30	Not rated		Not rated		Not rated	
GlF3:							
Gilpin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Peabody-------------	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
GmF:							
Gilpin, very stony--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Peabody, very stony-	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
GoF:							
Gilpin, very stony--	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Peabody, very stony-	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
Rock outcrop--------	10	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				

Table 16.--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
GpC:							
Upshur--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
GpD:							
Gilpin--------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Upshur--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
GpD3:							
Gilpin--------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Upshur--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
GpE:							
Gilpin--------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Upshur--------------	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
GpE3:							
Gilpin--------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Upshur--------------	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
GsA:							
Ginat---------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.91		
GtA:							
Ginat, rarely flooded------------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.91		

Table 16.--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
GvA:							
Ginat, rarely flooded------------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.91		
GxB:							
Glenford------------	75	Somewhat limited		Very limited		Very limited	
		Seepage	0.53	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.32				
				Piping	0.99		
GxC:							
Glenford------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	0.53				
				Piping	0.99		
HaA:							
Hackers, rarely flooded------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
HaB:							
Hackers, rarely flooded------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.68				
HoA:							
Huntington, occasionally flooded------------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
HuA:							
Huntington, rarely flooded------------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
KnA:							
Kanawha, rarely flooded------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
LaB:							
Lakin---------------	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
		Slope	0.68				
LaC:							
Lakin---------------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
		Slope	1.00				
LaD:							
Lakin---------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
		Slope	1.00				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Pond reservoir areas: Value	Embankments, dikes, and levees: Rating class and limiting features	Embankments, dikes, and levees: Value	Aquifer-fed excavated ponds: Rating class and limiting features	Aquifer-fed excavated ponds: Value
LbB:							
Lakin----------------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
		Slope	0.32				
Urban land----------	35	Not rated		Not rated		Not rated	
Ld:							
Landfills-----------	95	Not rated		Not rated		Not rated	
LlD:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.91		
		Depth to bedrock	0.17	Seepage	0.04		
LlE:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.91		
		Depth to bedrock	0.17	Seepage	0.04		
LsA:							
Lindside, occasionally flooded------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Piping	0.99	Slow refill	0.47
				Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
LtA:							
Lindside, rarely flooded------------	75	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Piping	0.99	Slow refill	0.47
				Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
LvA:							
Lobdell, occasionally flooded------------	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	0.10
				Depth to saturated zone	0.95	Depth to saturated zone	0.02
LzC:							
Lowell--------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.21	Depth to water	1.00
		Seepage	0.04	Thin layer	0.01		
		Depth to bedrock	0.01				
Culleoka------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
McA:							
McGary--------------	45	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00

Table 16.--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
McA:							
Shircliff-----------	35	Not limited		Very limited		Very limited	
				Depth to saturated zone	0.99	Depth to water	1.00
				Hard to pack	0.01		
MdA:							
Melvin, occasionally flooded-----------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.94		
MeA:							
Melvin, rarely flooded-----------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.94		
MgB:							
Monongahela---------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.68	Depth to saturated zone	0.99		
MoA:							
Moshannon, occasionally flooded-----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
						Slow refill	0.30
OmA:							
Omulga--------------	70	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.99	Depth to water	1.00
				Piping	0.93		
OmB:							
Omulga--------------	70	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.32	Piping	0.93		
PgF:							
Peabody-------------	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
Gilpin--------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
PgF3:							
Peabody-------------	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				

Table 16.--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
PgF3:							
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
Qu:							
Quarries, sand and gravel	100	Not rated		Not rated		Not rated	
SeA:							
Senecaville, occasionally flooded	75	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
				Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
SfA:							
Senecaville, rarely flooded	70	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
				Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
SnA:							
Sensabaugh, occasionally flooded	85	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
SrB:							
Sensabaugh, rarely flooded	75	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.68				
StC:							
Shircliff	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
				Hard to pack	0.01		
SxB:							
Shircliff	45	Somewhat limited		Very limited		Very limited	
		Slope	0.32	Depth to saturated zone	0.99	Depth to water	1.00
				Hard to pack	0.01		
McGary	35	Somewhat limited		Very limited		Very limited	
		Slope	0.08	Depth to saturated zone	1.00	Depth to water	1.00
TaA:							
Taggart	70	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.99	Slow refill	0.28
				Piping	0.98	Cutbanks cave	0.10
						Depth to saturated zone	0.01

Table 16.--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
TfA:							
Taggart, rarely flooded	70	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.99	Slow refill	0.28
				Piping	0.98	Cutbanks cave	0.10
						Depth to saturated zone	0.01
ThC:							
Tarhollow	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.68	Depth to water	1.00
		Seepage	0.72	Thin layer	0.02		
		Depth to bedrock	0.01	Piping	0.01		
ThD:							
Tarhollow	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.68	Depth to water	1.00
		Seepage	0.72	Thin layer	0.02		
		Depth to bedrock	0.01	Piping	0.01		
Ud:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	30	Not rated		Not rated		Not rated	
UeB:							
Upshur	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.68	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
UeC:							
Upshur	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
UeD:							
Upshur	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
UgC:							
Upshur	65	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
Gilpin	20	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
UgD:							
Upshur	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				

Table 16.--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
UgD3:							
Upshur	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
UgE:							
Upshur	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
UgE3:							
Upshur	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.33	Depth to water	1.00
		Depth to bedrock	0.01	Thin layer	0.29		
Gilpin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.86		
		Depth to bedrock	0.11				
VdC:							
Vandalia	75	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
VdD:							
Vandalia	75	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
VdE:							
Vandalia	65	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
VsD3:							
Vandalia	75	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
VsE3:							
Vandalia	65	Somewhat limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
VtE:							
Vandalia, very stony	65	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98

Table 16.--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
VxE:							
Vandalia, bouldery--	65	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02			Slow refill	0.98
WsA:							
Wheeling-----------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.01		
WsB:							
Wheeling-----------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.32	Seepage	0.01		
WsC:							
Wheeling-----------	70	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.01		
WuB:							
Wheeling-----------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.01		
Urban land----------	35	Not rated		Not rated		Not rated	
ZoB:							
Zoar----------------	75	Somewhat limited		Very limited		Very limited	
		Slope	0.68	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	0.02				
				Hard to pack	0.01		
ZoC:							
Zoar----------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	0.02				
				Hard to pack	0.01		

Table 17.--Engineering Index 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	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AeC:												
Allegheny-------	0-8	Loam	CL, ML	A-4	0	0	90-100	80-100	65-100	55-95	15-35	NP-10
	8-49	Clay loam, loam, sandy clay loam	SC, SM, ML, CL	A-4, A-6	0	0	90-100	80-100	65-95	35-80	15-35	NP-15
	49-60	Clay loam, sandy loam, gravelly sandy loam	GC, CL, ML, SM	A-1, A-2, A-4, A-6	0	0-5	65-100	55-100	35-95	20-75	15-35	NP-15
AfA:												
Ashton, rarely flooded--------	0-10	Fine sandy loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	10-50	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	50-65	Silt loam, loam, fine sandy loam	CL, CL-ML, ML, SM	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
AfB:												
Ashton, rarely flooded--------	0-10	Fine sandy loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	10-50	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	50-65	Silt loam, loam, fine sandy loam	ML, SM, CL-ML, CL	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
AsA:												
Ashton, rarely flooded--------	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	10-50	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	50-65	Silt loam, loam, fine sandy loam	CL, CL-ML, ML, SM	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AsB:												
Ashton, rarely flooded--------	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	10-50	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	50-65	Silt loam, loam, fine sandy loam	CL, CL-ML, ML, SM	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
AuB:												
Ashton, rarely flooded--------	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	10-50	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	50-65	Silt loam, loam, fine sandy loam	CL, CL-ML, SM, ML	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
Gallipolis, rarely flooded-	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
CcC:												
Cedarcreek------	0-10	Channery loam	GC	A-2, A-4, A-6	0	15-30	45-60	40-55	30-50	20-40	25-35	7-12
	10-70	Very channery loam, very stony silt loam, very channery sandy loam	GC	A-2, A-4	0	5-30	30-55	25-50	20-45	15-40	25-35	7-12

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CcE:												
Cedarcreek------	0-10	Channery loam	GC	A-2, A-4, A-6	0	15-30	45-60	40-55	30-50	20-40	25-35	7-12
	10-70	Very channery loam, very stony silt loam, very channery sandy loam	GC	A-2, A-4	0	5-30	30-55	25-50	20-45	15-40	25-35	7-12
CdA:												
Chagrin, occasionally flooded--------	0-6	Loam	CL, ML, CL-ML	A-4	0	0	95-100	85-100	80-100	70-90	20-35	2-10
	6-36	Silt loam, loam, sandy loam	SM, ML	A-2, A-4, A-6	0	0	90-100	75-100	55-90	30-80	20-40	NP-14
	36-65	Loam, stratified fine sand to silt loam, fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	50-85	15-80	20-40	NP-10
CfA:												
Chagrin, frequently flooded--------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	85-100	80-100	70-90	12-35	4-10
	6-36	Silt loam, loam, sandy loam	SM, ML	A-2, A-4, A-6	0	0	90-100	75-100	55-90	30-80	20-40	NP-14
	36-65	Loam, stratified fine sand to silt loam, fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	50-85	15-80	20-40	NP-10
Melvin, frequently flooded--------	0-9	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	80-95	12-35	4-10
	9-27	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	80-98	25-40	5-20
	27-65	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	60-98	25-40	5-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ChA:												
Chavies---------	0-12	Fine sandy loam	SM, ML	A-2, A-4	0	0	85-100	75-100	40-90	30-75	15-25	NP-5
	12-33	Fine sandy loam, loam	ML, SM	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	33-64	Stratified fine sandy loam to loamy fine sand, silt loam, sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	64-70	Fine sand, loamy fine sand, sand	ML, CL-ML, SM, SP, SC-SM	A-4, A-2, A-1-b	0	0-5	70-100	60-95	40-85	3-75	15-25	NP-5
ChB:												
Chavies---------	0-12	Fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	40-90	30-75	15-25	NP-5
	12-33	Fine sandy loam, loam	ML, SM	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	33-64	Stratified fine sandy loam to loamy fine sand, silt loam, sandy loam	SM, ML	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	64-70	Fine sand, loamy fine sand, sand	SM, ML, CL-ML, SC-SM, SP	A-4, A-2, A-1-b	0	0-5	70-100	60-95	40-85	3-75	15-25	NP-5
ChC:												
Chavies---------	0-12	Fine sandy loam	SM, ML	A-2, A-4	0	0	85-100	75-100	40-90	30-75	15-25	NP-5
	12-33	Fine sandy loam, loam	SM, ML	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	33-64	Stratified fine sandy loam to loamy fine sand, silt loam, sandy loam	SM, ML	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	64-70	Fine sand, loamy fine sand, sand	SP, SM, ML, SC-SM, CL-ML	A-4, A-2, A-1-b	0	0-5	70-100	60-95	40-85	3-75	15-25	NP-5

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CkB:												
Chavies---------	0-12	Fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	40-90	30-75	15-25	NP-5
	12-33	Fine sandy loam, loam	SM, ML	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	33-64	Stratified fine sandy loam to loamy fine sand, silt loam, sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	65-100	30-85	15-35	NP-8
	64-70	Fine sand, loamy fine sand, sand	CL-ML, SP, SM, ML, SC-SM	A-4, A-2, A-1-b	0	0-5	70-100	60-95	40-85	3-75	15-25	NP-5
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
CoA:												
Conotton--------	0-10	Gravelly sandy loam	SM, GM, ML	A-2, A-4	0	0-5	65-90	45-80	40-70	25-55	15-30	NP-6
	10-35	Very gravelly sandy loam, very gravelly loam, gravelly coarse sandy loam	SC-SM, GM, SM, GC-GM	A-2	0	0-10	35-70	25-50	25-40	25-30	15-25	NP-6
	35-65	Stratified very gravelly loamy sand to very gravelly sand	SW-SM, GW-GM, GM, SM	A-1	0	0-10	25-65	15-60	15-40	10-20	---	NP
CsB:												
Coolville-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-11	Silt loam	ML, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	70-90	18-40	4-14
	11-18	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	85-100	80-100	75-95	35-70	12-25
	18-42	Clay, silty clay, silty clay loam	CH, CL, MH	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	18-36
	42-52	Clay, silty clay, silty clay loam	CH, CL, MH	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	18-36
	52-62	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CsB:												
Tilsit----------	0-10	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	60-100	17-60	4-15
	10-28	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	65-100	25-40	5-20
	28-40	Silt loam, silty clay loam, loam	CL-ML, CL	A-4, A-6, A-7	0	0	90-100	85-100	75-100	65-100	25-45	5-25
	40-46	Silt loam, silty clay loam, loam	CL-ML, CL	A-4, A-6	0	0	90-100	85-100	75-100	65-100	25-40	5-20
	46-56	Weathered bedrock			---	---	---	---	---	---	---	---
CuD:												
Culleoka--------	0-10	Channery silt loam	CL, ML, CL-ML	A-4	0	0-10	50-95	45-90	35-85	30-80	15-35	NP-10
	10-26	Channery silt loam, very channery silt loam, silty clay loam	ML, CL, CL-ML	A-4, A-6	0	5-25	50-95	45-90	35-85	30-80	20-40	2-20
	26-31	Very channery silt loam, extremely channery silt loam, very channery silty clay loam	GC, CL, GM, ML	A-2, A-4, A-6	0	10-35	50-95	40-90	35-90	30-85	20-40	2-20
	31-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Lowell----------	0-10	Silty clay loam	CL, CL-ML, ML	A-4	0	0	100	95-100	90-100	85-100	22-40	4-12
	10-46	Silty clay, clay, silty clay loam	CL-ML, CH, CL	A-6, A-7	0	0	100	95-100	90-100	85-100	25-55	5-22
	46-59	Clay, very stony silty clay loam, silty clay, stony clay	CH, CL-ML, CL	A-6, A-7	0-15	0-15	95-100	90-100	85-100	75-100	25-55	5-22
	59-69	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
CuE:												
Culleoka--------	0-10	Channery silt loam	CL, CL-ML, ML	A-4	0	0-10	50-95	45-90	35-85	30-80	15-35	NP-10
	10-26	Channery silt loam, very channery silt loam, silty clay loam	ML, CL-ML, CL	A-4, A-6	0	5-25	50-95	45-90	35-85	30-80	20-40	2-20
	26-31	Very channery silt loam, extremely channery silt loam, very channery silty clay loam silty clay	CL, GC, GM, ML	A-2, A-4, A-6	0	10-35	50-95	40-90	35-90	30-85	20-40	2-20
	31-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Lowell----------	0-10	Silty clay loam	CL, CL-ML, ML	A-4	0	0	100	95-100	90-100	85-100	22-40	4-12
	10-46	Silty clay, clay, silty clay loam	CL, CH, CL-ML	A-6, A-7	0	0	100	95-100	90-100	85-100	25-55	5-22
	46-59	Clay, very stony silty clay loam, silty clay, stony clay	CL-ML, CH, CL	A-6, A-7	0-15	0-15	95-100	90-100	85-100	75-100	25-55	5-22
	59-69	Unweathered bedrock			---	---	---	---	---	---	---	---
DuC:												
Duncannon-------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-100	20-30	NP-5
	6-65	Silt loam, loam, fine sandy loam	CL-ML, ML, CL	A-4	0	0	95-100	90-100	85-100	70-100	17-30	NP-8
DuD:												
Duncannon-------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-100	20-30	NP-5
	6-65	Silt loam, loam, fine sandy loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-100	17-30	NP-8
DuE:												
Duncannon-------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-100	20-30	NP-5
	6-65	Silt loam, loam, fine sandy loam	ML, CL-ML, CL	A-4	0	0	95-100	90-100	85-100	70-100	17-30	NP-8

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EkA:												
Elk, rarely flooded--------	0-11	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	11-58	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	58-65	Silt loam, loam, fine sandy loam	SM, CL, CL-ML, ML	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
EkB:												
Elk, rarely flooded--------	0-11	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-95	15-35	NP-10
	11-58	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-100	25-42	5-20
	58-65	Silt loam, loam, fine sandy loam	ML, CL-ML, CL, SM	A-4, A-6	0	0-5	90-100	85-100	65-95	40-90	15-40	NP-20
GaC:												
Gallia----------	0-9	Loam	CL, CL-ML, ML	A-4	0	0	100	85-100	75-95	60-85	22-35	3-10
	9-60	Sandy clay loam, clay loam, loam	SC, CL	A-6	0	0	85-100	65-100	60-95	35-70	32-40	13-20
	60-65	Loam, clay loam, silty clay loam, silty clay	SM	A-1, A-2	0	0-5	75-100	65-100	45-70	15-35	---	NP
	65-75				---	---	---	---	---	---	---	---
GfA:												
Gallipolis------	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GfB:												
Gallipolis------	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15
GgA:												
Gallipolis, rarely flooded-	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15
GgB:												
Gallipolis, rarely flooded-	0-10	Silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GhB:												
Gallipolis------	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-100	15-45	4-15
	10-52	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	25-45	5-18
	52-60	Silt loam, silty clay loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-95	20-40	3-18
	60-74	Stratified fine sandy loam to silty clay loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	55-95	15-35	3-15
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
GlF3:												
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	GC, SC, CL, CL-ML	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Peabody---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-4	Silty clay loam	CL-ML, CL, ML	A-4, A-6, A-7	0	3-10	95-100	95-100	90-100	80-95	17-50	5-14
	4-23	Silty clay, channery silty clay, channery clay, silty clay loam	CL, CH	A-7	0	0-15	50-100	20-95	15-95	15-95	45-70	20-40
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GmF:												
Gilpin, very stony----------	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	GC, SC, CL, CL-ML	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Peabody, very stony----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-4	Silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	3-10	95-100	95-100	90-100	80-95	17-50	5-14
	4-23	Silty clay, channery silty clay, channery clay, silty clay loam	CH, CL	A-7	0	0-15	50-100	20-95	15-95	15-95	45-70	20-40
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---
GoF:												
Gilpin, very stony----------	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, SC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GoF:												
Peabody, very stony	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-4	Silt loam	CL-ML, ML, CL	A-4, A-6, A-7	0	3-10	95-100	95-100	90-100	80-95	17-50	5-14
	4-23	Silty clay, channery silty clay, channery clay, silty clay loam	CH, CL	A-7	0	0-15	50-100	20-95	15-95	15-95	45-70	20-40
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	---	---	---	---	---	---	---	---	---	---	---	---
GpC:												
Gilpin	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL, SC, CL-ML, GC	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Upshur	0-5	Silt loam	ML, CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	MH, CL, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
GpD:												
Gilpin	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, SC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
GpD:												
Upshur----------	0-5	Silt loam	ML, CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CL, MH, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
GpD3:												
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, SC, CL, GC	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-5	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	11-25
	5-44	Silty clay, clay, silty clay loam	CL, MH, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
GpE:												
Gilpin----------	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	SC, CL, GC, CL-ML	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GpE3:												
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, SC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-5	Silty clay loam	ML, CL	A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	11-25
	5-44	Silty clay, clay, silty clay loam	CL, MH, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
GsA:												
Ginat-----------	0-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-90	20-30	5-15
	9-62	Silt loam, silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
GtA:												
Ginat, rarely flooded--------	0-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-90	20-30	5-15
	9-62	Silt loam, silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
GvA:												
Ginat, rarely flooded--------	0-9	Silty clay loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-90	20-30	5-15
	9-62	Silt loam, silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
GxB:												
Glenford--------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	7-55	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	80-100	25-45	5-18
	55-65	Stratified silty clay loam to loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GxC:												
Glenford--------	0-7	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	7-55	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	80-100	25-45	5-18
	55-65	Stratified silty clay loam to loam, silt loam	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
HaA:												
Hackers, rarely flooded--------	0-8	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	90-100	90-100	75-100	60-90	20-35	3-12
	8-55	Silt loam, clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	90-100	90-100	75-95	2-50	1-15
	55-65	Silt loam, silty clay loam, loam	SM, SC, ML, CL	A-4, A-6	0	0-5	85-100	60-100	55-95	40-85	20-40	1-15
HaB:												
Hackers, rarely flooded--------	0-8	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	90-100	90-100	75-100	60-90	20-35	3-12
	8-55	Silt loam, clay loam, silty clay loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	90-100	90-100	90-100	75-95	2-50	1-15
	55-65	Silt loam, silty clay loam, loam	CL, ML, SM, SC	A-4, A-6	0	0-5	85-100	60-100	55-95	40-85	20-40	1-15
HoA:												
Huntington, occasionally flooded--------	0-11	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	95-100	85-100	60-95	5-50	1-15
	11-60	Silt loam, silty clay loam	ML, CL-ML, CL	A-4, A-6	0	0	95-100	95-100	85-100	60-95	2-50	1-15
	60-65	Loam, silt loam, silty clay loam	SM, SC, ML, CL	A-2, A-4	0	0-5	95-100	60-100	50-90	30-75	15-30	NP-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
HuA:												
Huntington, rarely flooded-	0-11	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	95-100	85-100	60-95	2-50	1-15
	11-60	Silt loam, silty clay loam	CL-ML, CL, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	2-50	1-15
	60-65	Loam, silt loam, silty clay loam	SM, SC, ML, CL	A-2, A-4	0	0-5	95-100	60-100	50-90	30-75	15-30	NP-10
KnA:												
Kanawha, rarely flooded--------	0-11	Loam	ML, CL, CL-ML	A-4	0	0	80-100	75-100	65-100	50-90	20-35	2-10
	11-65	Loam, sandy clay loam, clay loam	ML, SM, SC, CL	A-2, A-4, A-6	0	0	80-100	75-100	60-100	25-80	20-40	3-15
LaB:												
Lakin-----------	0-7	Loamy fine sand	SC-SM, SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	7-60	Loamy fine sand, stratified loamy fine sand to fine sandy loam, stratified loamy sand to loamy fine sand	SM, SC-SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	60-79	Fine sand, loamy sand	SM, SP-SM, SC-SM	A-2, A-3	0	0	95-100	95-100	90-100	5-35	0-30	NP-7
LaC:												
Lakin-----------	0-7	Loamy fine sand	SM, SC-SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	7-60	Loamy fine sand, stratified loamy fine sand to fine sandy loam, stratified loamy sand to loamy fine sand	SC-SM, SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	60-79	Fine sand, loamy sand	SP-SM, SM, SC-SM	A-2, A-3	0	0	95-100	95-100	90-100	5-35	0-30	NP-7

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LaD:												
Lakin-----------	0-7	Loamy fine sand	SC-SM, SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	7-60	Loamy fine sand, stratified loamy fine sand to fine sandy loam, stratified loamy sand to loamy fine sand	SC-SM, SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	60-79	Fine sand, loamy sand	SP-SM, SM, SC-SM	A-2, A-3	0	0	95-100	95-100	90-100	5-35	0-30	NP-7
LbB:												
Lakin-----------	0-7	Loamy fine sand	SC-SM, SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	7-60	Loamy fine sand, stratified loamy fine sand to fine sandy loam, stratified loamy sand to loamy fine sand	SM, SC-SM	A-2	0	0	95-100	95-100	95-100	10-35	0-30	NP-7
	60-79	Fine sand, loamy sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	95-100	95-100	90-100	5-35	0-30	NP-7
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Ld:												
Landfills-------	---	---	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LlD:												
Lily------------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-6	Fine sandy loam	CL-ML, ML, SM	A-4	0	0-5	90-100	85-100	70-95	40-80	15-35	NP-10
	6-25	Clay loam, sandy clay loam, loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	85-100	75-100	40-80	15-35	3-15
	25-28	Channery sandy loam, sandy loam, channery loam	CL, ML, SC, SM	A-1-b, A-2, A-4, A-6	0	0-10	65-100	50-100	40-95	20-75	15-35	3-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
LlE:												
Lily------------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-6	Fine sandy loam	ML, CL-ML, SM	A-4	0	0-5	90-100	85-100	70-95	40-80	15-35	NP-10
	6-25	Clay loam, sandy clay loam, loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	85-100	75-100	40-80	15-35	3-15
	25-28	Channery sandy loam, sandy loam, channery loam	CL, SM, SC, ML	A-1-b, A-2, A-4, A-6	0	0-10	65-100	50-100	40-95	20-75	15-35	3-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
LsA:												
Lindside, occasionally flooded--------	0-11	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	95-100	80-100	55-90	20-35	2-15
	11-42	Silty clay loam, silt loam	ML, CL-ML, CL	A-6, A-4	0	0	100	95-100	90-100	70-95	16-40	3-18
	42-65	Silty clay loam, silt loam	ML, CL-ML, CL	A-6, A-4	0	0	100	95-100	90-100	70-95	20-40	2-18

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LtA:												
Lindside, rarely flooded--------	0-11	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	80-100	55-90	20-35	2-15
	11-42	Silty clay loam, silt loam	ML, CL, CL-ML	A-6, A-4	0	0	100	95-100	90-100	70-95	16-40	3-18
	42-65	Silty clay loam, silt loam	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	90-100	70-95	20-40	2-18
LvA:												
Lobdell, occasionally flooded--------	0-5	Silt loam	ML, CL, CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	NP-8
	5-35	Loam, silt loam	ML	A-4	0	0	90-100	80-100	70-95	55-85	20-35	NP-10
	35-65	Loam, stratified sandy loam to silt loam	CL, CL-ML, ML, SM	A-4	0	0	90-100	80-100	65-85	40-80	15-35	NP-10
LzC:												
Lowell----------	0-10	Silty clay loam	CL, CL-ML, ML	A-4	0	0	100	95-100	90-100	85-100	22-40	4-12
	10-46	Silty clay, clay, silty clay loam	CL-ML, CH, CL	A-6, A-7	0	0	100	95-100	90-100	85-100	25-55	5-22
	46-59	Clay, very stony silty clay loam, silty clay, stony clay	CL-ML, CH, CL	A-6, A-7	0-15	0-15	95-100	90-100	85-100	75-100	25-55	5-22
	59-69	Unweathered bedrock			---	---	---	---	---	---	---	---
Culleoka--------	0-10	Channery silt loam	CL, CL-ML, ML	A-4	0	0-10	50-95	45-90	35-85	30-80	15-35	NP-10
	10-26	Channery silt loam, very channery silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	5-25	50-95	45-90	35-85	30-80	20-40	2-20
	26-31	Very channery silt loam, extremely channery silt loam, very channery silty clay loam	CL, GC, GM, ML	A-2, A-4, A-6	0	10-35	50-95	40-90	35-90	30-85	20-40	2-20
	31-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
McA:												
McGary----------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-15
	7-43	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-100	45-60	25-35
	43-79	Stratified silt loam to silty clay loam	CH, CL	A-6, A-7	0	0	95-100	95-100	95-100	85-100	35-55	20-35
Shircliff-------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	8-42	Silty clay, silty clay loam	CL, CH	A-7	0	0	100	100	95-100	90-95	45-60	19-32
	42-65	Silt loam, silty clay loam	CH, CL, MH, ML	A-7	0	0	100	100	90-100	75-95	40-55	15-25
MdA:												
Melvin, occasionally flooded--------	0-9	Silt loam	CL-ML, CL, ML	A-4	0	0	95-100	90-100	80-100	80-95	12-35	4-10
	9-27	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	80-98	25-40	5-20
	27-65	Silt loam, silty clay loam, loam	CL-ML, CL	A-4, A-6	0	0	85-100	80-100	70-100	60-98	25-40	5-20
MeA:												
Melvin, rarely flooded--------	0-9	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	80-95	12-35	4-10
	9-27	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	80-98	25-40	5-20
	27-65	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	60-98	25-40	5-20
MgB:												
Monongahela-----	0-9	Silt loam	CL-ML, SM, SC-SM, ML	A-4	0	0-5	90-100	85-100	75-100	45-90	20-35	1-10
	9-25	Silt loam, clay loam, gravelly loam	ML, CL-ML, CL	A-4, A-6	0	0-10	90-100	80-100	75-100	70-90	20-60	5-15
	25-60	Silt loam, sandy clay loam, gravelly loam	ML, CL, SM, SC	A-4, A-6	0	0-10	80-100	60-100	55-95	45-95	20-40	3-15
	60-72	Silt loam, clay loam, gravelly sandy loam	SM, SC, ML, CL	A-4, A-6	0	0-15	75-100	60-90	60-85	40-85	20-40	1-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MoA:												
Moshannon, occasionally flooded--------	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	22-40	3-15
	9-53	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	90-100	80-95	19-40	3-15
	53-79	Silt loam, fine sandy loam	CL, SC, CL-ML, ML	A-4, A-6	0	0	80-100	70-100	55-100	35-90	14-40	3-15
OmA:												
Omulga----------	0-9	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	65-90	20-35	2-15
	9-21	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	65-100	20-45	3-20
	21-45	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	60-90	20-40	3-20
	45-64	Silt loam, silty clay loam, clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	85-100	80-100	75-95	70-90	20-45	3-20
	64-79	Clay loam, silty clay loam, fine sandy loam, loam	SM, CL	A-6, A-7	0	0	80-100	75-100	65-95	45-90	20-50	8-20
OmB:												
Omulga----------	0-9	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	65-90	20-35	2-15
	9-21	Silty clay loam, silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	65-100	20-45	3-20
	21-45	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	60-90	20-40	3-20
	45-64	Silt loam, silty clay loam, clay loam	ML, CL-ML, CL	A-4, A-6, A-7	0	0	85-100	80-100	75-95	70-90	20-45	3-20
	64-79	Clay loam, silty clay loam, fine sandy loam, loam	CL, SM	A-6, A-7	0	0	80-100	75-100	65-95	45-90	20-50	8-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
PgF:												
Peabody---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-4	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	3-10	95-100	95-100	90-100	80-95	17-50	5-14
	4-23	Silty clay, channery silty clay, channery clay, silty clay loam	CH, CL	A-7	0	0-15	50-100	20-95	15-95	15-95	45-70	20-40
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, CL, SC	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
PgF3:												
Peabody---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	100	---	---
	1-4	Silty clay loam	CL-ML, ML, CL	A-4, A-6, A-7	0	3-10	95-100	95-100	90-100	80-95	17-50	5-14
	4-23	Silty clay, channery silty clay, channery clay, silty clay loam	CL, CH	A-7	0	0-15	50-100	20-95	15-95	15-95	45-70	20-40
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, SC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Qu:												
Quarries, sand and gravel-----	---	---	---	---	---	---	---	---	---	---	---	---
SeA:												
Senecaville, occasionally flooded--------	0-8	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	60-90	20-35	3-12
	8-32	Silty clay loam, silt loam	CL-ML, ML, CL	A-4, A-6	0	0	90-100	90-100	85-100	75-95	20-40	4-14
	32-60	Silt loam, fine sandy loam, loam	SM, SC, ML, CL	A-4, A-6	0	0-5	90-100	70-100	65-95	45-90	20-40	1-15
SfA:												
Senecaville, rarely flooded-	0-8	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	90-100	85-100	75-100	60-90	20-35	3-12
	8-32	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	90-100	85-100	75-95	20-40	4-14
	32-60	Silt loam, fine sandy loam, loam	CL, ML, SM, SC	A-4, A-6	0	0-5	90-100	70-100	65-95	45-90	20-40	1-15
SnA:												
Sensabaugh, occasionally flooded--------	0-7	Loam	CL, CL-ML, ML	A-4	0	0-5	90-100	75-95	65-85	55-75	16-29	3-9
	7-32	Gravelly loam, gravelly clay loam, gravelly silty clay loam, gravelly sandy clay loam	SC-SM, GC, CL-ML, CL	A-4, A-6	0	2-18	70-95	55-90	45-75	35-65	20-35	5-14
	32-65	Gravelly loam, gravelly clay loam, very gravelly fine sandy loam, gravelly sandy clay loam	SC-SM, SC, GC-GM, GC	A-2, A-4, A-6	0	5-30	55-90	25-75	25-65	20-55	20-36	6-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
SrB:												
Sensabaugh, rarely flooded-	0-7	Loam	CL, CL-ML, ML	A-4	0	0-5	90-100	75-95	65-85	55-75	16-29	3-9
	7-32	Gravelly loam, gravelly clay loam, gravelly silty clay loam, gravelly sandy clay loam	CL-ML, CL, GC, SC-SM	A-4, A-6	0	2-18	70-95	55-90	45-75	35-65	20-35	5-14
	32-65	Gravelly loam, gravelly clay loam, very gravelly fine sandy loam, gravelly sandy clay loam	GC-GM, GC, SC, SC-SM	A-2, A-4, A-6	0	5-30	55-90	25-75	25-65	20-55	20-36	6-15
StC:												
Shircliff-------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	8-42	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-95	45-60	19-32
	42-65	Silt loam, silty clay loam	MH, ML, CH, CL	A-7	0	0	100	100	90-100	75-95	40-55	15-25
SxB:												
Shircliff-------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	8-42	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-95	45-60	19-32
	42-65	Silt loam, silty clay loam	CH, ML, CL, MH	A-7	0	0	100	100	90-100	75-95	40-55	15-25
McGary----------	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-15
	7-43	Silty clay, silty clay loam	CL, CH	A-7	0	0	100	100	95-100	90-100	45-60	25-35
	43-79	Stratified silt loam to silty clay loam	CH, CL	A-6, A-7	0	0	95-100	95-100	95-100	85-100	35-55	20-35

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
TaA:												
Taggart---------	0-8	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	8-72	Silty clay loam, silt loam	CL	A-6, A-4	0	0-1	90-100	75-100	65-95	50-85	25-35	8-15
	72-79	Silty clay loam, silt loam, loam	CL	A-4, A-6	0	0-1	90-100	75-100	65-95	50-85	25-35	8-15
TfA:												
Taggart, rarely flooded--------	0-8	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	8-72	Silty clay loam, silt loam	CL	A-6, A-4	0	0-1	90-100	75-100	65-95	50-85	25-35	8-15
	72-79	Silty clay loam, silt loam, loam	CL	A-4, A-6	0	0-1	90-100	75-100	65-95	50-85	25-35	8-15
ThC:												
Tarhollow-------	0-5	Silt loam	CL-ML, CL, ML	A-4	0	0	95-100	90-100	80-100	70-100	22-35	3-10
	5-31	Silt loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	80-100	30-50	10-20
	31-55	Silty clay loam, silty clay, clay, channery silty clay, channery silty clay loam	CH, CL	A-6, A-7	0	0-25	80-100	80-100	70-100	60-100	35-60	20-35
	55-60	Weathered bedrock			---	---	---	---	---	---	---	---
ThD:												
Tarhollow-------	0-5	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	70-100	22-35	3-10
	5-31	Silt loam, silty clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	85-100	80-100	30-50	10-20
	31-55	Silty clay loam, silty clay, clay, channery silty clay, channery silty clay loam	CL, CH	A-6, A-7	0	0-25	80-100	80-100	70-100	60-100	35-60	20-35
	55-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ud:												
Udorthents------	---	---	---	---	---	---	---	---	---	---	---	---
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
UeB:												
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
UeC:												
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
UeD:												
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CL, MH, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
UgC:												
Upshur----------	0-5	Silt loam	ML, CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL, CL-ML, SC, GC	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
UgD:												
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	MH, CL, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	GC, SC, CL, CL-ML	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
UgD3:												
Upshur----------	0-5	Silty clay loam	ML, CL	A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	11-25
	5-44	Silty clay, clay, silty clay loam	CL, MH, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	SC, CL-ML, GC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
UgE:												
Upshur----------	0-5	Silt loam	CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	4-25
	5-44	Silty clay, clay, silty clay loam	MH, CH, CL	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
UgE:												
Gilpin----------	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL-ML, GC, SC, CL	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
UgE3:												
Upshur----------	0-5	Silty clay loam	ML, CL	A-6, A-7	0	0	95-100	95-100	90-100	80-95	35-50	11-25
	5-44	Silty clay, clay, silty clay loam	MH, CL, CH	A-7	0	0	95-100	95-100	90-100	85-100	45-70	4-40
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-3	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	3-30	Channery loam, channery silt loam, channery silty clay loam, channery clay loam	CL, SC, GC, CL-ML	A-6, A-2, A-4	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	30-39	Weathered bedrock			---	---	---	---	---	---	---	---
VdC:												
Vandalia--------	0-9	Silt loam	CL, ML	A-4, A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	CL, CH, ML	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	CH, CL, MH, ML	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
VdD:												
Vandalia--------	0-9	Silt loam	ML, CL	A-4, A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	ML, CL, CH	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	ML, MH, CL, CH	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30
VdE:												
Vandalia--------	0-9	Silt loam	ML, CL	A-4, A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	CH, CL, ML	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	CH, CL, ML, MH	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30
VsD3:												
Vandalia--------	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	CH, CL, ML	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	MH, ML, CL, CH	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
VsE3:												
Vandalia--------	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	CL, ML, CH	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	CH, CL, ML, MH	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30
VtE:												
Vandalia, very stony----------	0-9	Silt loam	CL, ML	A-4, A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	ML, CL, CH	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	CH, CL, ML, MH	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30
VxE:												
Vandalia, bouldery-------	0-9	Silt loam	CL, ML	A-4, A-6, A-7	0	0-5	80-100	75-100	70-95	50-90	25-45	1-20
	9-57	Silty clay loam, channery silty clay, clay	CH, CL, ML	A-6, A-7	0	0-5	65-100	65-95	65-90	60-85	35-55	4-30
	57-65	Silty clay, clay, channery silty clay loam, very channery silty clay loam	MH, ML, CH, CL	A-6, A-7	0	5-35	70-100	65-100	60-100	55-100	30-55	4-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
WsA:												
Wheeling--------	0-12	Silt loam	ML, SM, CL, SC	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	12-43	Silty clay loam, loam, silt loam	SC, ML, CL, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	43-79	Stratified very gravelly sand to very gravelly loamy sand, stratified loam to fine sandy loam to loamy sand, gravelly sandy loam	GW, SM, GP, GM	A-1, A-2, A-3, A-4	0	0-10	50-100	30-100	10-95	3-80	15-20	NP-10
WsB:												
Wheeling--------	0-12	Silt loam	CL, ML, SC, SM	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	12-43	Silty clay loam, loam, silt loam	SC, ML, CL, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	43-79	Stratified very gravelly sand to very gravelly loamy sand, stratified loam to fine sandy loam to loamy sand, gravelly sandy loam	GP, GW, SM, GM	A-1, A-2, A-3, A-4	0	0-10	50-100	30-100	10-95	3-80	15-20	NP-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
WsC:												
Wheeling--------	0-12	Silt loam	CL, ML, SC, SM	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	12-43	Silty clay loam, loam, silt loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	43-79	Stratified very gravelly sand to very gravelly loamy sand, stratified loam to fine sandy loam to loamy sand, gravelly sandy loam	GM, GP, GW, SM	A-1, A-2, A-3, A-4	0	0-10	50-100	30-100	10-95	3-80	15-20	NP-10
WuB:												
Wheeling--------	0-12	Silt loam	SM, ML, CL, SC	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	12-43	Silty clay loam, loam, silt loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	43-79	Stratified very gravelly sand to very gravelly loamy sand, stratified loam to fine sandy loam to loamy sand, gravelly sandy loam	GM, GW, GP, SM	A-1, A-2, A-3, A-4	0	0-10	50-100	30-100	10-95	3-80	15-20	NP-10
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
ZoB:												
Zoar------------	0-9	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	95-100	95-100	90-100	75-95	20-40	3-15
	9-39	Silty clay, silty clay loam, clay	ML, MH, CL, CH	A-6, A-7	0	0	95-100	95-100	90-100	85-100	30-70	11-32
	39-65	Clay loam, silty clay loam, clay	CL, CH, MH, ML	A-6, A-7	0	0	95-100	95-100	90-100	75-95	30-70	11-35

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
ZoC:												
Zoar-------------	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	75-95	20-40	3-15
	9-39	Silty clay, silty clay loam, clay	ML, CH, MH, CL	A-6, A-7	0	0	95-100	95-100	90-100	85-100	30-70	11-32
	39-65	Clay loam, silty clay loam, clay	CH, CL, MH, ML	A-6, A-7	0	0	95-100	95-100	90-100	75-95	30-70	11-35

Table 18.--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	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
AeC:												
Allegheny-----------	0-8	23-52	28-50	7-27	1.20-1.40	0.6-2	0.12-0.22	0.0-2.9	1.0-3.0	.32	.32	4
	8-49	35-50	20-50	15-35	1.20-1.50	0.6-2	0.13-0.18	0.0-2.9	0.1-0.5	.28	.28	
	49-60	30-75	15-45	5-35	1.20-1.40	0.6-2	0.08-0.17	0.0-2.9	0.0-0.5	.28	.28	
AfA:												
Ashton, rarely flooded------------	0-10	40-65	30-50	5-20	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	3.0-5.0	.32	.32	5
	10-50	0-25	50-75	18-34	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	50-65	0-60	15-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43	
AfB:												
Ashton, rarely flooded------------	0-10	40-65	30-50	5-20	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	3.0-5.0	.32	.32	5
	10-50	0-25	50-75	18-34	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	50-65	0-60	15-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43	
AsA:												
Ashton, rarely flooded------------	0-10	0-50	50-88	10-26	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	3.0-5.0	.32	.32	5
	10-50	0-25	50-75	18-34	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	50-65	0-60	15-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43	
AsB:												
Ashton, rarely flooded------------	0-10	0-50	50-88	10-26	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	3.0-5.0	.32	.32	5
	10-50	0-25	50-75	18-34	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	50-65	0-60	15-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43	
AuB:												
Ashton, rarely flooded------------	0-10	0-50	50-88	10-26	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	3.0-5.0	.32	.32	5
	10-50	0-25	50-75	18-34	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	50-65	0-60	15-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43	
Gallipolis, rarely flooded------------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	--

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
CcC:												
Cedarcreek----------	0-10	15-52	28-55	15-27	1.35-1.65	0.6-6	0.07-0.16	0.0-2.9	0.1-0.5	.32	.43	5
	10-70	20-65	15-55	15-27	1.35-1.65	0.6-6	0.07-0.16	0.0-2.9	0.0-0.1	.32	.43	
CcE:												
Cedarcreek----------	0-10	15-52	28-55	15-27	1.35-1.65	0.6-6	0.07-0.16	0.0-2.9	0.1-0.5	.32	.43	5
	10-70	20-65	15-55	15-27	1.35-1.65	0.6-6	0.07-0.16	0.0-2.9	0.0-0.1	.32	.43	
CdA:												
Chagrin, occasionally flooded------------	0-6	20-50	28-65	10-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5
	6-36	20-50	28-65	18-27	1.20-1.50	0.6-2	0.14-0.20	0.0-2.9	0.2-0.8	.32	.37	
	36-65	40-95	5-55	5-25	1.20-1.40	0.6-2	0.08-0.20	0.0-2.9	0.1-0.4	.32	.43	
CfA:												
Chagrin, frequently flooded------------	0-6	5-25	50-75	10-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5
	6-36	20-50	28-65	18-27	1.20-1.50	0.6-2	0.14-0.20	0.0-2.9	0.2-0.8	.32	.37	
	36-65	40-95	5-55	5-25	1.20-1.40	0.6-2	0.08-0.20	0.0-2.9	0.1-0.4	.32	.43	
Melvin, frequently flooded------------	0-9	5-25	50-70	18-30	1.20-1.60	0.6-2	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5
	9-27	5-25	50-70	18-35	1.30-1.60	0.6-2	0.18-0.23	0.0-2.9	0.5-2.0	.43	.43	
	27-65	5-35	40-70	18-35	1.40-1.70	0.6-2	0.16-0.23	0.0-2.9	0.2-1.0	.43	.43	
ChA:												
Chavies-------------	0-12	43-85	15-40	7-18	1.20-1.40	2-6	0.11-0.18	0.0-2.9	1.0-3.0	.24	.24	4
	12-33	45-70	15-50	9-18	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.2-0.7	.24	.24	
	33-64	40-85	10-60	5-15	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.1-0.5	.24	.24	
	64-70	75-95	3-20	2-10	1.30-1.50	6-20	0.08-0.18	---	0.0-0.5	.17	.20	
ChB:												
Chavies-------------	0-12	43-85	15-40	7-18	1.20-1.40	2-6	0.11-0.18	0.0-2.9	1.0-3.0	.24	.24	4
	12-33	45-70	15-50	9-18	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.2-0.7	.24	.24	
	33-64	40-85	10-60	5-15	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.1-0.5	.24	.24	
	64-70	75-95	3-20	2-10	1.30-1.50	6-20	0.08-0.18	---	0.0-0.5	.17	.20	
ChC:												
Chavies-------------	0-12	43-85	15-40	7-18	1.20-1.40	2-6	0.11-0.18	0.0-2.9	1.0-3.0	.24	.24	4
	12-33	45-70	15-50	9-18	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.2-0.7	.24	.24	
	33-64	40-85	10-60	5-15	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.1-0.5	.24	.24	
	64-70	75-95	3-20	2-10	1.30-1.50	6-20	0.08-0.18	---	0.0-0.5	.17	.20	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
CkB:												
Chavies-------------	0-12	43-85	15-40	7-18	1.20-1.40	2-6	0.11-0.18	0.0-2.9	1.0-3.0	.24	.24	4
	12-33	45-70	15-50	9-18	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.2-0.7	.24	.24	
	33-64	40-85	10-60	5-15	1.20-1.40	2-6	0.11-0.20	0.0-2.9	0.1-0.5	.24	.24	
	64-70	75-95	3-20	2-10	1.30-1.50	6-20	0.08-0.18	---	0.0-0.5	.17	.20	
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	--
CoA:												
Conotton------------	0-10	43-85	10-30	8-16	1.30-1.50	2-6	0.10-0.14	0.0-2.9	0.5-3.0	.24	.43	3
	10-35	40-80	10-30	6-22	1.25-1.60	6-20	0.06-0.10	0.0-2.9	0.1-0.5	.24	.64	
	35-65	---	---	2-9	1.20-1.50	6-20	0.02-0.06	0.0-2.9	0.1-0.3	.10	.37	
CsB:												
Coolville-----------	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.20-0.24	---	80-90	---	---	3
	1-11	---	---	17-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	
	11-18	---	---	27-40	1.40-1.65	0.6-2	0.16-0.19	3.0-5.9	0.3-1.0	.43	.49	
	18-42	---	---	35-60	1.50-1.70	0.06-0.2	0.10-0.15	3.0-5.9	0.1-0.5	.32	.37	
	42-52	5-30	35-60	35-60	1.50-1.70	0.06-0.2	0.10-0.15	3.0-5.9	0.0-0.2	.32	.37	
	52-62	---	---	---	---	0.00-0.2	---	---	---	---	---	
Tilsit--------------	0-10	5-40	50-80	10-25	1.20-1.55	0.6-2	0.16-0.22	0.0-2.9	1.0-3.0	.43	.43	3
	10-28	5-30	45-75	15-35	1.30-1.55	0.6-2	0.16-0.22	0.0-2.9	0.1-0.2	.43	.43	
	28-40	5-30	45-75	18-35	1.40-1.65	0.06-0.2	0.08-0.12	0.0-2.9	0.1-0.5	.43	.43	
	40-46	5-30	45-75	18-35	1.30-1.55	0.6-2	0.16-0.22	0.0-2.9	0.1-0.3	.43	.43	
	46-56	---	---	---	---	0.2-2	---	---	---	---	---	
CuD:												
Culleoka------------	0-10	10-50	50-65	15-27	1.20-1.40	0.6-6	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	3
	10-26	15-50	40-65	18-35	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	0.1-0.8	.28	.32	
	26-31	10-50	40-65	18-45	1.20-1.50	0.6-6	0.05-0.14	0.0-2.9	0.0-0.5	.17	.28	
	31-33	---	---	---	---	0.00-2	---	---	---	---	---	
Lowell--------------	0-10	5-25	40-65	27-35	1.20-1.40	0.3-2	0.18-0.23	0.0-2.9	1.0-3.0	.37	.37	3
	10-46	5-30	20-55	35-60	1.30-1.60	0.2-1	0.13-0.19	3.0-5.9	0.5-1.0	.28	.28	
	46-59	5-30	20-65	35-60	1.50-1.60	0.2-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.28	.28	
	59-69	---	---	---	---	0.06-6	---	---	---	---	---	
CuE:												
Culleoka------------	0-10	10-50	50-65	15-27	1.20-1.40	0.6-6	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	3
	10-26	15-50	40-65	18-35	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	0.1-0.8	.28	.32	
	26-31	10-50	40-65	18-45	1.20-1.50	0.6-6	0.05-0.14	0.0-2.9	0.0-0.5	.17	.28	
	31-33	---	---	---	---	0.00-2	---	---	---	---	---	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
CuE:												
Lowell--------------	0-10	5-25	40-65	27-35	1.20-1.40	0.3-2	0.18-0.23	0.0-2.9	1.0-3.0	.37	.37	3
	10-46	5-30	20-55	35-60	1.30-1.60	0.2-1	0.13-0.19	3.0-5.9	0.5-1.0	.28	.28	
	46-59	5-30	20-65	35-60	1.50-1.60	0.2-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.28	.28	
	59-69	---	---	---	---	0.06-6	---	---	---	---	---	
DuC:												
Duncannon-----------	0-6	5-30	50-85	10-20	1.20-1.40	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	6-65	5-50	35-85	10-24	1.40-1.60	0.6-2	0.14-0.16	0.0-2.9	0.3-1.0	.43	.43	
DuD:												
Duncannon-----------	0-6	5-30	50-85	10-20	1.20-1.40	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	6-65	5-50	35-85	10-24	1.40-1.60	0.6-2	0.14-0.16	0.0-2.9	0.3-1.0	.43	.43	
DuE:												
Duncannon-----------	0-6	5-30	50-85	10-20	1.20-1.40	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	6-65	5-50	35-85	10-24	1.40-1.60	0.6-2	0.14-0.16	0.0-2.9	0.3-1.0	.43	.43	
EkA:												
Elk, rarely flooded-	0-11	5-45	50-88	10-25	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	1.0-2.0	.32	.32	5
	11-58	5-45	50-73	22-35	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.3-0.8	.43	.43	
	58-65	10-65	45-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.3	.43	.43	
EkB:												
Elk, rarely flooded-	0-11	5-45	50-88	10-25	1.20-1.40	0.6-2	0.16-0.23	0.0-2.9	1.0-2.0	.32	.32	5
	11-58	5-45	50-73	22-35	1.20-1.50	0.6-2	0.18-0.23	0.0-2.9	0.3-0.8	.43	.43	
	58-65	10-65	45-75	10-27	1.25-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.3	.43	.43	
GaC:												
Gallia--------------	0-9	23-52	28-50	10-22	1.30-1.50	0.6-2	0.18-0.23	0.0-2.9	1.0-3.0	.37	.37	5
	9-60	20-52	20-50	18-35	1.20-1.60	0.6-2	0.12-0.18	3.0-5.9	0.5-1.5	.37	.49	
	60-65	20-65	20-50	10-45	1.20-1.50	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.10	.15	
	65-75	---	---	---	---	0.00-2	---	---	---	---	---	
GfA:												
Gallipolis----------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	
GfB:												
Gallipolis----------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
GgA:												
Gallipolis, rarely flooded------------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	
GgB:												
Gallipolis, rarely flooded------------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	
GhB:												
Gallipolis----------	0-10	5-50	50-75	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	5-45	45-75	20-35	1.45-1.65	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37	
	52-60	5-45	45-75	20-35	1.45-1.65	0.2-2	0.15-0.18	0.0-2.9	0.0-0.5	.37	.37	
	60-74	---	---	18-32	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37	
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	---
GlF3:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Peabody-------------	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.14-0.18	---	80-90	---	---	3
	1-4	10-30	40-65	27-35	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.32	.37	
	4-23	8-30	20-55	35-60	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.2-1.0	.32	.32	
	23-33	---	---	---	---	0.00-0.2	---	---	---	---	---	
GmF:												
Gilpin, very stony--	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Peabody, very stony-	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.14-0.18	---	80-90	---	---	3
	1-4	10-30	40-65	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.32	.37	
	4-23	8-30	20-55	35-60	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.2-1.2	.32	.32	
	23-33	---	---	---	---	0.00-0.2	---	---	---	---	---	
GoF:												
Gilpin, very stony--	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
GoF:												
Peabody, very stony-	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.14-0.18	---	80-90	---	---	3
	1-4	10-30	40-65	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.32	.37	
	4-23	8-30	20-55	35-60	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.2-1.2	.32	.32	
	23-33	---	---	---	---	0.00-0.2	---	---	---	---	---	
Rock outcrop--------	---	---	---	---	---	---	---	---	---	---	---	--
GpC:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
GpD:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
GpD3:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Upshur--------------	0-5	5-20	40-70	27-40	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
GpE:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
GpE3:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Upshur--------------	0-5	5-20	40-70	27-40	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
GsA:												
Ginat---------------	0-9	5-25	50-75	20-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-4.0	.43	.43	4
	9-62	5-25	45-70	25-35	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-1.5	.43	.43	
GtA:												
Ginat, rarely flooded------------	0-9	5-25	50-75	20-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-4.0	.43	.43	4
	9-62	5-25	45-70	25-35	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-1.5	.43	.43	
GvA:												
Ginat, rarely flooded------------	0-9	5-25	50-75	27-35	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-4.0	.43	.43	4
	9-62	5-25	45-70	25-35	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-1.5	.43	.43	
GxB:												
Glenford------------	0-7	5-25	50-75	15-27	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	7-55	5-25	45-70	22-35	1.45-1.65	0.2-2	0.14-0.18	3.0-5.9	0.2-0.6	.43	.43	
	55-65	5-35	40-75	15-40	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.1-0.3	.37	.37	
GxC:												
Glenford------------	0-7	5-25	50-75	15-27	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	7-55	5-25	45-70	22-35	1.45-1.65	0.2-2	0.14-0.18	3.0-5.9	0.2-0.6	.43	.43	
	55-65	5-35	40-75	15-40	1.40-1.60	0.2-2	0.12-0.17	0.0-2.9	0.1-0.3	.37	.37	
HaA:												
Hackers, rarely flooded------------	0-8	5-40	50-75	15-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-3.0	.32	.32	4
	8-55	5-35	45-70	20-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.2-0.6	.37	.37	
	55-65	5-50	35-75	15-35	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.1-0.3	.28	.28	
HaB:												
Hackers, rarely flooded------------	0-8	5-40	50-75	15-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-3.0	.32	.32	4
	8-55	5-35	45-70	20-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.2-0.6	.37	.37	
	55-65	5-50	35-75	15-35	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.1-0.3	.28	.28	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
HoA:												
Huntington, occasionally flooded------------	0-11	5-25	50-75	18-27	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	3.0-6.0	.28	.28	5
	11-60	5-25	50-75	18-33	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	0.4-1.5	.32	.32	
	60-65	5-40	35-70	15-35	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	0.2-1.0	.28	.32	
HuA:												
Huntington, rarely flooded------------	0-11	5-25	50-75	18-27	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	3.0-6.0	.28	.28	5
	11-60	5-25	50-75	18-33	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	0.4-1.5	.32	.32	
	60-65	5-40	35-70	15-35	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	0.2-1.0	.28	.32	
KnA:												
Kanawha, rarely flooded------------	0-11	23-52	28-50	10-20	1.20-1.40	0.6-2	0.16-0.22	0.0-2.9	1.0-3.0	.32	.32	4
	11-65	20-60	15-50	18-35	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.3-0.5	.28	.28	
LaB:												
Lakin---------------	0-7	75-85	7-20	2-6	1.20-1.40	6-20	0.06-0.10	0.0-2.9	1.0-2.0	.17	.17	5
	7-60	---	---	3-10	1.20-1.40	6-20	0.06-0.10	0.0-2.9	0.1-0.6	.17	.17	
	60-79	80-99	0-15	1-5	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.2	.17	.20	
LaC:												
Lakin---------------	0-7	75-85	7-20	2-6	1.20-1.40	6-20	0.06-0.10	0.0-2.9	1.0-2.0	.17	.17	5
	7-60	---	---	3-10	1.20-1.40	6-20	0.06-0.10	0.0-2.9	0.1-0.6	.17	.17	
	60-79	80-99	0-15	1-5	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.2	.17	.20	
LaD:												
Lakin---------------	0-7	75-85	7-20	2-6	1.20-1.40	6-20	0.06-0.10	0.0-2.9	1.0-2.0	.17	.17	5
	7-60	---	---	3-10	1.20-1.40	6-20	0.06-0.10	0.0-2.9	0.1-0.6	.17	.17	
	60-79	80-99	0-15	1-5	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.2	.17	.20	
LbB:												
Lakin---------------	0-7	75-85	7-20	2-6	1.20-1.40	6-20	0.06-0.10	0.0-2.9	1.0-2.0	.17	.17	5
	7-60	---	---	3-10	1.20-1.40	6-20	0.06-0.10	0.0-2.9	0.1-0.6	.17	.17	
	60-79	80-99	0-15	1-5	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.2	.17	.20	
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	--
Ld:												
Landfills-----------	---	---	---	---	---	---	---	---	---	---	---	--

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
LlD:												
Lily----------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.14-0.20	---	60-80	---	---	2
	1-6	45-75	10-30	7-20	1.20-1.40	0.6-6	0.13-0.18	0.0-2.9	1.0-4.0	.28	.37	
	6-25	30-55	25-45	18-35	1.25-1.35	2-6	0.12-0.18	0.0-2.9	0.2-1.0	.28	.28	
	25-28	45-75	10-30	15-27	1.25-1.35	2-6	0.08-0.17	0.0-2.9	0.2-0.3	.17	.24	
	28-38	---	---	---	---	0.2-2	---	---	---	---	---	
LlE:												
Lily----------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.14-0.20	---	60-80	---	---	2
	1-6	45-75	10-30	7-20	1.20-1.40	0.6-6	0.13-0.18	0.0-2.9	1.0-4.0	.28	.37	
	6-25	30-55	25-45	18-35	1.25-1.35	2-6	0.12-0.18	0.0-2.9	0.2-1.0	.28	.28	
	25-28	45-75	10-30	15-27	1.25-1.35	2-6	0.08-0.17	0.0-2.9	0.2-0.3	.17	.24	
	28-38	---	---	---	---	0.2-2	---	---	---	---	---	
LsA:												
Lindside, occasionally flooded------------	0-11	5-25	50-75	15-27	1.20-1.40	0.6-2	0.20-0.26	0.0-2.9	2.0-4.0	.32	.32	5
	11-42	5-25	50-75	18-35	1.20-1.40	0.2-2	0.17-0.22	0.0-2.9	0.2-1.5	.37	.37	
	42-65	5-35	40-75	18-35	1.20-1.40	0.2-2	0.17-0.22	0.0-2.9	0.2-1.0	.37	.37	
LtA:												
Lindside, rarely flooded------------	0-11	5-25	50-75	15-27	1.20-1.40	0.6-2	0.20-0.26	0.0-2.9	2.0-4.0	.32	.32	5
	11-42	5-25	50-75	18-35	1.20-1.40	0.2-2	0.17-0.22	0.0-2.9	0.2-1.5	.37	.37	
	42-65	5-35	40-75	18-35	1.20-1.40	0.2-2	0.17-0.22	0.0-2.9	0.2-1.0	.37	.37	
LvA:												
Lobdell, occasionally flooded------------	0-5	15-45	40-70	15-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	5-35	30-50	30-60	18-30	1.25-1.60	0.6-2	0.17-0.22	0.0-2.9	0.3-1.0	.37	.43	
	35-65	30-50	30-50	15-27	1.20-1.60	0.6-6	0.12-0.18	0.0-2.9	0.1-0.3	.37	.43	
LzC:												
Lowell--------------	0-10	5-25	40-65	27-35	1.20-1.40	0.3-2	0.18-0.23	0.0-2.9	1.0-4.0	.37	.37	3
	10-46	5-30	20-55	35-60	1.30-1.60	0.2-1	0.13-0.19	3.0-5.9	0.5-1.0	.28	.28	
	46-59	5-30	20-65	35-60	1.50-1.60	0.2-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.28	.28	
	59-69	---	---	---	---	0.06-6	---	---	---	---	---	
Culleoka------------	0-10	10-50	50-65	15-27	1.20-1.40	0.6-6	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	3
	10-26	15-50	40-65	18-35	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	0.1-0.8	.28	.32	
	26-31	10-50	40-65	18-45	1.20-1.50	0.6-6	0.05-0.14	0.0-2.9	0.0-0.5	.17	.28	
	31-33	---	---	---	---	0.00-2	---	---	---	---	---	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
McA:												
McGary--------------	0-7	5-25	50-65	22-27	1.35-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	7-43	5-25	45-65	35-55	1.60-1.70	0.06-0.2	0.11-0.13	6.0-8.9	0.2-0.5	.32	.32	
	43-79	---	---	24-40	1.55-1.65	0.06-0.2	0.14-0.16	6.0-8.9	0.1-0.3	.32	.32	
Shircliff-----------	0-8	5-25	50-65	20-27	1.30-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	8-42	5-25	40-55	35-55	1.55-1.65	0.06-0.2	0.11-0.13	6.0-8.9	0.2-0.5	.32	.32	
	42-65	5-25	40-65	20-40	1.55-1.70	0.06-0.2	0.09-0.11	6.0-8.9	0.1-0.3	.32	.32	
MdA:												
Melvin, occasionally flooded------------	0-9	5-25	50-75	15-27	1.20-1.60	0.6-2	0.18-0.23	0.0-2.9	1.0-3.0	.43	.43	5
	9-27	5-25	50-70	18-35	1.30-1.60	0.6-2	0.18-0.23	0.0-2.9	0.5-2.0	.43	.43	
	27-65	5-35	40-70	18-35	1.40-1.70	0.6-2	0.16-0.23	0.0-2.9	0.2-1.0	.43	.43	
MeA:												
Melvin, rarely flooded------------	0-9	5-25	50-75	15-27	1.20-1.60	0.6-2	0.18-0.23	0.0-2.9	1.0-3.0	.43	.43	5
	9-27	5-25	50-70	18-35	1.30-1.60	0.6-2	0.18-0.23	0.0-2.9	0.5-2.0	.43	.43	
	27-65	5-35	40-70	18-35	1.40-1.70	0.6-2	0.16-0.23	0.0-2.9	0.2-1.0	.43	.43	
MgB:												
Monongahela---------	0-9	10-50	50-65	10-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	9-25	10-50	25-60	18-35	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.1-0.8	.43	.43	
	25-60	10-50	25-60	18-35	1.30-1.60	0.06-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.43	.49	
	60-72	10-50	25-60	10-35	1.20-1.40	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37	.43	
MoA:												
Moshannon, occasionally flooded------------	0-9	3-15	50-75	15-27	1.20-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	9-53	3-15	50-75	18-32	1.20-1.50	0.6-2	0.18-0.22	0.0-2.9	0.2-1.5	.37	.37	
	53-79	5-75	10-75	12-27	1.20-1.50	0.6-2	0.14-0.18	0.0-2.9	0.1-0.3	.37	.43	
OmA:												
Omulga--------------	0-9	5-15	50-80	12-18	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	4
	9-21	5-15	50-80	22-35	1.30-1.45	0.6-2	0.18-0.22	3.0-5.9	0.1-0.5	.43	.43	
	21-45	5-15	50-80	18-30	1.60-1.80	0.06-0.2	0.06-0.08	3.0-5.9	0.1-0.5	.43	.49	
	45-64	5-30	40-75	20-35	1.50-1.60	0.2-0.6	0.18-0.21	3.0-5.9	0.1-0.5	.43	.49	
	64-79	15-75	5-60	18-40	1.50-1.60	0.2-0.6	0.10-0.18	3.0-5.9	0.1-0.5	.32	.37	
OmB:												
Omulga--------------	0-9	5-15	50-80	12-18	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	4
	9-21	5-15	50-80	22-35	1.30-1.45	0.6-2	0.18-0.22	3.0-5.9	0.1-0.5	.43	.43	
	21-45	5-15	50-80	18-30	1.60-1.80	0.06-0.2	0.06-0.08	3.0-5.9	0.1-0.5	.43	.49	
	45-64	5-30	40-75	20-35	1.50-1.60	0.2-0.6	0.18-0.21	3.0-5.9	0.1-0.5	.43	.49	
	64-79	15-75	5-60	18-40	1.50-1.60	0.2-0.6	0.10-0.18	3.0-5.9	0.1-0.5	.32	.37	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
PgF:												
Peabody-------------	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.14-0.18	---	80-90	---	---	3
	1-4	10-30	40-65	22-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.32	.37	
	4-23	8-30	20-55	35-60	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.2-1.2	.32	.32	
	23-33	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
PgF3:												
Peabody-------------	0-1	0-0	0-0	0-0	0.04-0.10	6-20	0.14-0.18	---	80-90	---	---	3
	1-4	10-30	40-65	27-35	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.32	.37	
	4-23	8-30	20-55	35-60	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.2-1.2	.32	.32	
	23-33	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
Qu:												
Quarries, sand and gravel-------------	---	---	---	---	---	---	---	---	---	---	---	--
SeA:												
Senecaville, occasionally flooded------------	0-8	5-15	50-75	15-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-3.0	.32	.32	5
	8-32	5-15	50-75	18-35	1.20-1.40	0.2-2	0.12-0.18	3.0-5.9	0.2-0.6	.37	.37	
	32-60	5-50	40-75	15-35	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.1-0.3	.28	.28	
SfA:												
Senecaville, rarely flooded------------	0-8	5-15	50-75	15-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-3.0	.32	.32	5
	8-32	5-15	50-75	18-35	1.20-1.40	0.2-2	0.12-0.18	3.0-5.9	0.2-0.6	.37	.37	
	32-60	5-50	40-75	15-35	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.1-0.3	.28	.28	
SnA:												
Sensabaugh, occasionally flooded------------	0-7	5-50	25-65	8-25	1.25-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.24	.24	5
	7-32	5-50	15-60	18-35	1.30-1.50	0.6-6	0.10-0.16	0.0-2.9	0.2-0.6	.20	.24	
	32-65	20-80	5-50	12-35	1.25-1.50	0.6-6	0.08-0.14	0.0-2.9	0.1-0.3	.17	.20	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
SrB:												
Sensabaugh, rarely flooded-----------	0-7	5-50	25-65	8-25	1.25-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.24	.24	5
	7-32	5-50	15-60	18-35	1.30-1.50	0.6-6	0.10-0.16	0.0-2.9	0.2-0.6	.20	.24	
	32-65	20-80	5-50	12-35	1.25-1.50	0.6-6	0.08-0.14	0.0-2.9	0.1-0.3	.17	.20	
StC:												
Shircliff-----------	0-8	5-25	50-65	20-27	1.30-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	8-42	5-25	40-55	35-55	1.55-1.65	0.06-0.2	0.11-0.13	6.0-8.9	0.2-0.5	.32	.32	
	42-65	5-25	40-65	20-40	1.55-1.70	0.06-0.2	0.09-0.11	6.0-8.9	0.1-0.3	.32	.32	
SxB:												
Shircliff-----------	0-8	5-25	50-65	20-27	1.30-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	8-42	5-25	40-55	35-55	1.55-1.65	0.06-0.2	0.11-0.13	6.0-8.9	0.2-0.5	.32	.32	
	42-65	5-25	40-65	20-40	1.55-1.70	0.06-0.2	0.09-0.11	6.0-8.9	0.1-0.3	.32	.32	
McGary--------------	0-7	5-25	50-65	22-27	1.35-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3
	7-43	5-25	45-65	35-55	1.60-1.70	0.06-0.2	0.11-0.13	6.0-8.9	0.2-0.5	.32	.32	
	43-79	---	---	24-40	1.55-1.65	0.06-0.2	0.14-0.16	6.0-8.9	0.1-0.3	.32	.32	
TaA:												
Taggart-------------	0-8	5-15	50-75	15-27	1.30-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	8-72	5-15	50-75	15-35	1.40-1.60	0.6-2	0.19-0.21	0.0-2.9	0.2-0.8	.37	.43	
	72-79	5-25	40-75	20-30	1.40-1.60	0.6-2	0.19-0.21	0.0-2.9	0.1-0.3	.37	.43	
TfA:												
Taggart, rarely flooded-----------	0-8	5-15	50-75	15-27	1.30-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.37	.37	5
	8-72	5-15	50-75	15-35	1.40-1.60	0.6-2	0.19-0.21	0.0-2.9	0.2-0.8	.37	.43	
	72-79	5-25	40-75	20-30	1.40-1.60	0.6-2	0.19-0.21	0.0-2.9	0.1-0.3	.37	.43	
ThC:												
Tarhollow-----------	0-5	5-15	50-80	14-27	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4
	5-31	5-15	50-80	25-35	1.30-1.50	0.6-2	0.17-0.22	3.0-5.9	0.3-0.8	.43	.43	
	31-55	5-15	35-65	35-60	1.40-1.60	0.06-0.2	0.15-0.18	6.0-8.9	0.2-0.5	.32	.37	
	55-60	---	---	---	---	0.00-0.2	---	---	0.0-0.0	---	---	
ThD:												
Tarhollow-----------	0-5	5-15	50-80	14-27	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4
	5-31	5-15	50-80	25-35	1.30-1.50	0.6-2	0.17-0.22	3.0-5.9	0.3-0.8	.43	.43	
	31-55	5-15	35-65	35-60	1.40-1.60	0.06-0.2	0.15-0.18	6.0-8.9	0.2-0.5	.32	.37	
	55-60	---	---	---	---	0.00-0.2	---	---	0.0-0.0	---	---	
Ud:												
Udorthents----------	---	---	---	---	---	---	---	---	---	---	---	--
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	--

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
UeB:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
UeC:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
UeD:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
UgC:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
UgD:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
UgD3:												
Upshur--------------	0-5	5-20	40-70	27-40	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
UgE:												
Upshur--------------	0-5	5-30	40-70	20-27	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	1.0-3.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
UgE:												
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-4.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
UgE3:												
Upshur--------------	0-5	5-20	40-70	27-40	1.20-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.37	.37	3
	5-44	3-30	25-60	35-70	1.30-1.60	0.06-0.2	0.10-0.14	6.0-8.9	0.1-1.0	.32	.32	
	44-54	---	---	---	---	0.00-0.2	---	---	---	---	---	
Gilpin--------------	0-3	10-50	50-65	15-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	3
	3-30	10-50	35-65	15-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.2-0.8	.24	.28	
	30-39	---	---	---	---	0.2-2	---	---	---	---	---	
VdC:												
Vandalia------------	0-9	5-30	50-70	20-27	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	1.0-3.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
VdD:												
Vandalia------------	0-9	5-30	50-70	20-27	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	1.0-3.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
VdE:												
Vandalia------------	0-9	5-30	50-70	20-27	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	1.0-3.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
VsD3:												
Vandalia------------	0-9	5-20	50-70	27-40	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	0.5-1.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
VsE3:												
Vandalia------------	0-9	5-20	50-70	27-40	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	0.5-1.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
VtE:												
Vandalia, very stony	0-9	5-30	50-70	20-27	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	1.0-3.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	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			
VxE:												
Vandalia, bouldery--	0-9	5-30	50-70	20-27	1.20-1.50	0.2-2	0.12-0.18	3.0-5.9	1.0-3.0	.37	.37	4
	9-57	5-25	35-65	35-50	1.30-1.60	0.06-0.6	0.12-0.15	6.0-8.9	0.2-0.6	.32	.32	
	57-65	5-30	35-65	27-50	1.30-1.60	0.06-0.6	0.08-0.12	6.0-8.9	0.1-0.3	.32	.32	
WsA:												
Wheeling------------	0-12	15-45	50-65	12-20	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.37	.37	4
	12-43	15-45	40-65	15-30	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.2-0.8	.32	.32	
	43-79	---	---	2-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.1-0.4	.20	.28	
WsB:												
Wheeling------------	0-12	15-45	50-65	12-20	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.37	.37	4
	12-43	15-45	40-65	15-30	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.2-0.8	.32	.32	
	43-79	---	---	2-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.1-0.4	.20	.28	
WsC:												
Wheeling------------	0-12	15-45	50-65	12-20	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.37	.37	4
	12-43	15-45	40-65	15-30	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.2-0.8	.32	.32	
	43-79	---	---	2-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.1-0.4	.20	.28	
WuB:												
Wheeling------------	0-12	15-45	50-65	12-20	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.37	.37	4
	12-43	15-45	40-65	15-30	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.2-0.8	.32	.32	
	43-79	---	---	2-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.1-0.4	.20	.28	
Urban land----------	---	---	---	---	---	---	---	---	---	---	---	--
ZoB:												
Zoar----------------	0-9	5-40	50-75	15-27	1.20-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.43	3
	9-39	10-40	35-65	27-50	1.30-1.60	0.06-0.6	0.12-0.15	3.0-5.9	0.2-0.6	.32	.32	
	39-65	10-40	35-65	27-50	1.40-1.70	0.06-0.2	0.08-0.12	3.0-5.9	0.1-0.3	.32	.32	
ZoC:												
Zoar----------------	0-9	5-40	50-75	15-27	1.20-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.43	3
	9-39	10-40	35-65	27-50	1.30-1.60	0.06-0.6	0.12-0.15	3.0-5.9	0.2-0.6	.32	.32	
	39-65	10-40	35-65	27-50	1.40-1.70	0.06-0.2	0.08-0.12	3.0-5.9	0.1-0.3	.32	.32	

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
AeC:				
Allegheny-----------	0-8	6.0-16	4.5-12	3.6-5.5
	8-49	4.7-9.9	3.5-7.4	3.6-5.5
	49-60	2.5-9.9	1.9-7.4	3.6-5.5
AfA:				
Ashton, rarely flooded------------	0-10	12-22	9.0-16	5.6-7.3
	10-50	8.0-15	6.0-11	5.6-7.3
	50-65	4.0-12	3.0-9.0	5.6-7.3
AfB:				
Ashton, rarely flooded------------	0-10	12-22	9.0-16	5.6-7.3
	10-50	8.0-15	6.0-11	5.6-7.3
	50-65	4.0-12	3.0-9.0	5.6-7.3
AsA:				
Ashton, rarely flooded------------	0-10	12-22	9.0-16	5.6-7.3
	10-50	8.0-15	6.0-11	5.6-7.3
	50-65	4.0-12	3.0-9.0	5.6-7.3
AsB:				
Ashton, rarely flooded------------	0-10	12-22	9.0-16	5.6-7.3
	10-50	8.0-15	6.0-11	5.6-7.3
	50-65	4.0-12	3.0-9.0	5.6-7.3
AuB:				
Ashton, rarely flooded------------	0-10	12-22	9.0-16	5.6-7.3
	10-50	8.0-15	6.0-11	5.6-7.3
	50-65	4.0-12	3.0-9.0	5.6-7.3
Gallipolis, rarely flooded------------	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0
Urban land-----------	---	---	---	---
CcC:				
Cedarcreek-----------	0-10	3.6-11	2.7-7.9	3.6-5.5
	10-70	6.3-9.7	4.7-7.3	3.6-5.5
CcE:				
Cedarcreek-----------	0-10	3.6-11	2.7-7.9	3.6-5.5
	10-70	6.3-9.7	4.7-7.3	3.6-5.5
CdA:				
Chagrin, occasionally flooded------------	0-6	7.0-16	5.2-12	5.6-7.3
	6-36	6.8-12	5.1-8.9	5.6-7.3
	36-65	2.0-9.2	1.5-6.9	5.6-7.3

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
CfA:				
Chagrin, frequently flooded	0-6	7.0-16	5.2-12	5.6-7.3
	6-36	6.8-12	5.1-8.9	5.6-7.3
	36-65	2.0-9.2	1.5-6.9	5.6-7.3
Melvin, frequently flooded	0-9	5.0-10	3.0-7.0	5.6-7.8
	9-27	8.0-15	3.0-12	5.6-7.8
	27-65	5.0-15	2.0-12	5.6-7.8
ChA:				
Chavies	0-12	1.1-15	1.6-5.7	4.5-5.5
	12-33	3.4-11	2.6-6.9	4.5-5.5
	33-64	2.7-6.8	1.3-5.6	4.5-5.5
	64-70	1.0-5.4	1.0-3.0	4.5-6.0
ChB:				
Chavies	0-12	1.1-15	1.6-5.7	4.5-5.5
	12-33	3.4-11	2.6-6.9	4.5-5.5
	33-64	2.7-6.8	1.3-5.6	4.5-5.5
	64-70	1.0-5.4	1.0-3.0	4.5-6.0
ChC:				
Chavies	0-12	1.1-15	1.6-5.7	4.5-5.5
	12-33	3.4-11	2.6-6.9	4.5-5.5
	33-64	2.7-6.8	1.3-5.6	4.5-5.5
	64-70	1.0-5.4	1.0-3.0	4.5-6.0
CkB:				
Chavies	0-12	1.1-15	1.6-5.7	4.5-5.5
	12-33	3.4-11	2.6-6.9	4.5-5.5
	33-64	2.7-6.8	1.3-5.6	4.5-5.5
	64-70	1.0-5.4	1.0-3.0	4.5-6.0
Urban land	---	---	---	---
CoA:				
Conotton	0-10	8.0-16	4.0-10	4.5-6.5
	10-35	3.0-12	3.0-8.0	4.5-7.3
	35-65	2.0-10	1.0-5.0	5.6-7.8
CsB:				
Coolville	0-1	60-125	60-94	3.6-6.5
	1-11	10-20	4.9-7.4	3.6-6.5
	11-18	15-24	11-23	3.6-5.5
	18-42	17-35	15-23	3.6-5.5
	42-52	15-30	15-23	3.6-5.5
	52-62	---	---	---
Tilsit	0-10	8.0-13	5.0-11	3.6-6.0
	10-28	4.0-16	3.0-13	3.6-6.5
	28-40	5.0-17	3.0-12	3.6-5.5
	40-46	8.0-17	3.0-15	3.6-6.5
	46-56	---	---	---
CuD:				
Culleoka	0-10	17-24	6.0-8.0	5.1-7.3
	10-26	13-22	8.0-10	5.1-6.0
	26-31	13-22	9.0-12	5.1-6.5
	31-33	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
CuD:				
Lowell	0-10	5.0-15	5.0-10	5.6-7.3
	10-46	15-30	11-19	5.6-7.3
	46-59	16-35	14-22	6.1-7.8
	59-69	---	---	---
CuE:				
Culleoka	0-10	17-24	6.0-8.0	5.1-7.3
	10-26	13-22	8.0-10	5.1-6.0
	26-31	13-22	9.0-12	5.1-6.5
	31-33	---	---	---
Lowell	0-10	5.0-15	5.0-10	5.6-7.3
	10-46	15-30	11-19	5.6-7.3
	46-59	16-35	14-22	6.1-7.8
	59-69	---	---	---
DuC:				
Duncannon	0-6	8.0-20	6.0-15	5.1-6.0
	6-65	5.0-12	3.0-9.0	5.1-6.0
DuD:				
Duncannon	0-6	8.0-20	6.0-15	5.1-6.0
	6-65	5.0-12	3.0-9.0	5.1-6.0
DuE:				
Duncannon	0-6	8.0-20	6.0-15	5.1-6.0
	6-65	5.0-12	3.0-9.0	5.1-6.0
EkA:				
Elk, rarely flooded	0-11	5.0-15	7.0-15	5.6-7.3
	11-58	5.0-20	6.0-11	5.6-7.3
	58-65	5.0-25	6.0-12	5.6-7.3
EkB:				
Elk, rarely flooded	0-11	5.0-15	7.0-15	5.6-7.3
	11-58	5.0-20	6.0-11	5.6-7.3
	58-65	5.0-25	6.0-12	5.6-7.3
GaC:				
Gallia	0-9	6.0-19	7.0-14	4.5-7.3
	9-60	7.0-21	7.0-14	4.5-6.4
	60-65	7.0-25	1.0-15	4.5-6.0
	65-75	---	---	---
GfA:				
Gallipolis	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0
GfB:				
Gallipolis	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
GgA:				
Gallipolis, rarely flooded	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0
GgB:				
Gallipolis, rarely flooded	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0
GhB:				
Gallipolis	0-10	10-24	7.0-15	5.1-7.3
	10-52	8.0-21	3.0-16	4.5-5.5
	52-60	8.0-21	3.0-16	4.5-5.5
	60-74	7.0-20	2.0-16	4.5-6.0
Urban land	---	---	---	---
GlF3:				
Gilpin	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Peabody	0-1	60-125	60-94	4.5-6.5
	1-4	1.0-16	1.0-12	4.5-6.5
	4-23	5.0-10	4.0-8.0	4.5-8.4
	23-33	---	---	---
GmF:				
Gilpin, very stony	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Peabody, very stony	0-1	60-125	60-94	4.5-6.5
	1-4	1.0-16	1.0-12	4.5-6.5
	4-23	5.0-10	4.0-8.0	4.5-8.4
	23-33	---	---	---
GoF:				
Gilpin, very stony	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Peabody, very stony	0-1	60-125	60-94	4.5-6.5
	1-4	1.0-16	1.0-12	4.5-6.5
	4-23	5.0-10	4.0-8.0	4.5-8.4
	23-33	---	---	---
Rock outcrop	---	---	---	---
GpC:				
Gilpin	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Upshur	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
GpD:				
Gilpin----------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Upshur----------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
GpD3:				
Gilpin----------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Upshur----------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
GpE:				
Gilpin----------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Upshur----------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
GpE3:				
Gilpin----------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Upshur----------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
GsA:				
Ginat-----------------	0-9	8.0-15	4.0-12	4.5-7.3
	9-62	9.0-20	7.0-18	4.5-5.5
GtA:				
Ginat, rarely flooded	0-9	8.0-15	4.0-12	4.5-7.3
	9-62	9.0-20	7.0-18	4.5-5.5
GvA:				
Ginat, rarely flooded	0-9	8.0-15	4.0-12	4.5-7.3
	9-62	9.0-20	7.0-18	4.5-5.5
GxB:				
Glenford--------------	0-7	10-20	7.0-15	4.5-7.3
	7-55	10-21	3.0-16	4.5-6.0
	55-65	2.0-21	2.0-16	5.6-7.8
GxC:				
Glenford--------------	0-7	10-20	7.0-15	4.5-7.3
	7-55	10-21	3.0-16	4.5-6.0
	55-65	2.0-21	2.0-16	5.6-7.8

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
HaA:				
Hackers, rarely flooded	0-8	12-23	9.0-17	5.1-6.5
	8-55	9.0-18	7.0-14	5.1-6.5
	55-65	9.0-18	7.0-14	5.1-6.5
HaB:				
Hackers, rarely flooded	0-8	12-23	9.0-17	5.1-6.5
	8-55	9.0-18	7.0-14	5.1-6.5
	55-65	9.0-18	7.0-14	5.1-6.5
HoA:				
Huntington, occasionally flooded	0-11	11-19	8.0-15	5.6-7.8
	11-60	10-17	3.0-11	5.6-7.8
	60-65	3.0-15	2.0-10	5.6-7.8
HuA:				
Huntington, rarely flooded	0-11	11-19	8.0-15	5.6-7.8
	11-60	10-17	3.0-11	5.6-7.8
	60-65	3.0-15	2.0-10	5.6-7.8
KnA:				
Kanawha, rarely flooded	0-11	5.0-9.0	1.0-5.0	5.1-6.0
	11-65	2.0-9.0	1.0-5.0	5.1-7.3
LaB:				
Lakin	0-7	3.0-7.0	1.0-3.3	4.5-6.0
	7-60	1.0-4.0	0.3-2.4	4.5-6.0
	60-79	1.0-4.0	0.3-2.4	4.5-6.0
LaC:				
Lakin	0-7	3.0-7.0	1.0-3.3	4.5-6.0
	7-60	1.0-4.0	0.3-2.4	4.5-6.0
	60-79	1.0-4.0	0.3-2.4	4.5-6.0
LaD:				
Lakin	0-7	3.0-7.0	1.0-3.3	4.5-6.0
	7-60	1.0-4.0	0.3-2.4	4.5-6.0
	60-79	1.0-4.0	0.3-2.4	4.5-6.0
LbB:				
Lakin	0-7	3.0-7.0	1.0-3.3	4.5-6.0
	7-60	1.0-4.0	0.3-2.4	4.5-6.0
	60-79	1.0-4.0	0.3-2.4	4.5-6.0
Urban land	---	---	---	---
Ld:				
Landfills	---	---	---	---
LlD:				
Lily	0-1	60-125	60-94	3.6-5.5
	1-6	2.9-16	2.2-12	3.6-5.5
	6-25	5.1-12	3.8-9.1	3.6-5.5
	25-28	5.4-9.3	4.0-7.0	3.6-5.5
	28-38	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
LlE:				
Lily	0-1	60-125	60-94	3.6-5.5
	1-6	2.9-16	2.2-12	3.6-5.5
	6-25	5.1-12	3.8-9.1	3.6-5.5
	25-28	5.4-9.3	4.0-7.0	3.6-5.5
	28-38	---	---	---
LsA:				
Lindside, occasionally flooded	0-11	15-30	6.0-15	5.1-7.8
	11-42	15-25	4.0-11	5.1-7.8
	42-65	8.0-25	1.0-8.0	5.1-7.8
LtA:				
Lindside, rarely flooded	0-11	15-30	6.0-15	5.1-7.8
	11-42	15-25	4.0-11	5.1-7.8
	42-65	8.0-25	1.0-8.0	5.1-7.8
LvA:				
Lobdell, occasionally flooded	0-5	8.0-10	4.0-6.0	5.1-7.3
	5-35	6.0-8.0	3.0-5.0	5.1-7.3
	35-65	5.0-8.0	2.0-5.0	5.6-7.3
LzC:				
Lowell	0-10	5.0-15	5.0-10	5.6-7.3
	10-46	15-30	11-19	5.6-7.3
	46-59	16-35	14-22	6.1-7.8
	59-69	---	---	---
Culleoka	0-10	17-24	6.0-8.0	5.1-7.3
	10-26	13-22	8.0-10	5.1-6.0
	26-31	13-22	9.0-12	5.1-6.5
	31-33	---	---	---
McA:				
McGary	0-7	9.0-25	4.0-12	6.1-7.3
	7-43	16-24	12-20	5.6-7.8
	43-79	10-18	12-20	7.9-8.4
Shircliff	0-8	9.0-25	4.0-12	5.1-7.3
	8-42	16-24	12-20	5.1-7.3
	42-65	10-18	12-20	7.4-8.4
MdA:				
Melvin, occasionally flooded	0-9	5.0-10	3.0-7.0	5.6-7.8
	9-27	8.0-15	3.0-12	5.6-7.8
	27-65	5.0-15	2.0-12	5.6-7.8
MeA:				
Melvin, rarely flooded	0-9	5.0-10	3.0-7.0	5.6-7.8
	9-27	8.0-15	3.0-12	5.6-7.8
	27-65	5.0-15	2.0-12	5.6-7.8
MgB:				
Monongahela	0-9	7.0-16	5.2-12	4.5-5.5
	9-25	4.5-9.9	3.4-7.4	4.5-5.5
	25-60	4.5-9.9	3.4-7.4	4.5-5.5
	60-72	2.5-9.9	1.9-7.4	4.5-5.5

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
MoA:				
Moshannon, occasionally flooded	0-9	10-20	7.0-15	5.6-7.3
	9-53	10-19	7.0-15	5.6-6.5
	53-79	6.0-17	5.0-13	5.6-7.3
OmA:				
Omulga	0-9	6.0-15	8.0-16	4.5-7.3
	9-21	6.0-15	8.0-16	3.6-5.5
	21-45	8.0-16	8.0-18	3.6-5.5
	45-64	11-20	8.0-18	4.5-6.0
	64-79	8.0-25	8.0-18	4.5-7.3
OmB:				
Omulga	0-9	6.0-15	8.0-16	4.5-7.3
	9-21	6.0-15	8.0-16	3.6-5.5
	21-45	8.0-16	8.0-18	3.6-5.5
	45-64	11-20	8.0-18	4.5-6.0
	64-79	8.0-25	8.0-18	4.5-7.3
PgF:				
Peabody	0-1	60-125	60-94	4.5-6.5
	1-4	1.0-16	1.0-12	4.5-6.5
	4-23	5.0-10	4.0-8.0	4.5-8.4
	23-33	---	---	---
Gilpin	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
PgF3:				
Peabody	0-1	60-125	60-94	4.5-6.5
	1-4	1.0-16	1.0-12	4.5-6.5
	4-23	5.0-10	4.0-8.0	4.5-8.4
	23-33	---	---	---
Gilpin	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
Qu:				
Quarries, sand and gravel	---	---	---	---
SeA:				
Senecaville, occasionally flooded	0-8	12-23	9.0-17	5.1-6.5
	8-32	10-22	7.0-16	5.1-6.5
	32-60	9.0-18	7.0-14	5.1-6.5
SfA:				
Senecaville, rarely flooded	0-8	12-23	9.0-17	5.1-6.5
	8-32	10-22	7.0-16	5.1-6.5
	32-60	9.0-18	7.0-14	5.1-6.5
SnA:				
Sensabaugh, occasionally flooded	0-7	5.0-15	4.0-11	5.6-7.8
	7-32	6.0-11	5.0-8.0	5.6-7.8
	32-65	4.0-12	3.0-9.0	5.6-7.8

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
SrB:				
Sensabaugh, rarely flooded	0-7	5.0-15	4.0-11	5.6-7.8
	7-32	6.0-11	5.0-8.0	5.6-7.8
	32-65	4.0-12	3.0-9.0	5.6-7.8
StC:				
Shircliff	0-8	9.0-25	4.0-12	5.1-7.3
	8-42	16-24	12-20	5.1-7.3
	42-65	10-18	12-20	7.4-8.4
SxB:				
Shircliff	0-8	9.0-25	4.0-12	5.1-7.3
	8-42	16-24	12-20	5.1-7.3
	42-65	10-18	12-20	7.4-8.4
McGary	0-7	9.0-25	4.0-12	6.1-7.3
	7-43	16-24	12-20	5.6-7.8
	43-79	10-18	12-20	7.9-8.4
TaA:				
Taggart	0-8	6.0-18	4.0-12	4.5-7.3
	8-72	10-22	4.0-16	4.5-5.5
	72-79	8.0-20	4.0-16	4.5-5.5
TfA:				
Taggart, rarely flooded	0-8	6.0-18	4.0-12	4.5-7.3
	8-72	10-22	4.0-16	4.5-5.5
	72-79	8.0-20	4.0-16	4.5-5.5
ThC:				
Tarhollow	0-5	10-20	7.0-15	3.6-7.3
	5-31	12-22	7.0-18	4.5-6.0
	31-55	16-30	12-20	5.1-7.3
	55-60	---	---	---
ThD:				
Tarhollow	0-5	10-20	7.0-15	3.6-7.3
	5-31	12-22	7.0-18	4.5-6.0
	31-55	16-30	12-20	5.1-7.3
	55-60	---	---	---
Ud:				
Udorthents	---	---	---	---
Urban land	---	---	---	---
UeB:				
Upshur	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
UeC:				
Upshur	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
UeD:				
Upshur	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
UgC:				
Upshur---------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
Gilpin---------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
UgD:				
Upshur---------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
Gilpin---------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
UgD3:				
Upshur---------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
Gilpin---------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
UgE:				
Upshur---------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
Gilpin---------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
UgE3:				
Upshur---------------	0-5	7.5-18	5.6-14	4.5-6.5
	5-44	11-16	7.9-12	4.5-8.4
	44-54	---	---	---
Gilpin---------------	0-3	1.1-16	0.8-12	3.6-5.5
	3-30	5.0-10	3.7-7.6	3.6-5.5
	30-39	---	---	---
VdC:				
Vandalia-------------	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
VdD:				
Vandalia-------------	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
VdE:				
Vandalia-------------	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
VsD3:				
Vandalia-------------	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
VsE3:				
Vandalia-------------	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
VtE:				
Vandalia, very stony-	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
VxE:				
Vandalia, bouldery---	0-9	2.2-16	1.7-12	4.5-6.0
	9-57	13-22	9.5-17	4.5-6.0
	57-65	13-22	9.4-16	5.1-7.3
WsA:				
Wheeling-------------	0-12	2.0-16	2.0-12	5.1-6.5
	12-43	6.0-11	5.0-8.0	5.1-6.0
	43-79	2.0-11	2.0-8.0	5.1-6.0
WsB:				
Wheeling-------------	0-12	2.0-16	2.0-12	5.1-6.5
	12-43	6.0-11	5.0-8.0	5.1-6.0
	43-79	2.0-11	2.0-8.0	5.1-6.0
WsC:				
Wheeling-------------	0-12	2.0-16	2.0-12	5.1-6.5
	12-43	6.0-11	5.0-8.0	5.1-6.0
	43-79	2.0-11	2.0-8.0	5.1-6.0
WuB:				
Wheeling-------------	0-12	2.0-16	2.0-12	5.1-6.5
	12-43	6.0-11	5.0-8.0	5.1-6.0
	43-79	2.0-11	2.0-8.0	5.1-6.0
Urban land-----------	---	---	---	---
ZoB:				
Zoar-----------------	0-9	7.5-18	5.6-14	4.5-5.5
	9-39	12-22	9.4-16	4.5-5.5
	39-65	9.7-18	7.3-13	4.5-5.5
ZoC:				
Zoar-----------------	0-9	7.5-18	5.6-14	4.5-5.5
	9-39	12-22	9.4-16	4.5-5.5
	39-65	9.7-18	7.3-13	4.5-5.5

Table 20.--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	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AeC:										
Allegheny-----------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
AfA:										
Ashton, rarely flooded----	B	Low	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
AfB:										
Ashton, rarely flooded----	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AsA:										
Ashton, rarely flooded----	B	Low	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
AsB:										
Ashton, rarely flooded----	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
AuB:										
Ashton, rarely flooded----	B	Low	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AuB:										
Gallipolis, rarely flooded	C	Low	January	2.0-3.5	>6.0	---	---	None	Very brief	Rare
			February	2.0-3.5	>6.0	---	---	None	Very brief	Rare
			March	2.0-3.5	>6.0	---	---	None	Very brief	Rare
			April	2.0-3.5	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	2.0-3.5	>6.0	---	---	None	Very brief	Rare
Urban land----------------	---	---	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
CcC:										
Cedarcreek----------------	C	Low	Jan-Dec	---	---	---	---	None	---	None
CcE:										
Cedarcreek----------------	C	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CdA:										
Chagrin, occasionally flooded------------------	B	Low	January	---	---	---	---	None	Brief	Occasional
			February	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			March	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	Brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
CfA:										
Chagrin, frequently flooded------------------	B	Low	January	---	---	---	---	None	Brief	Frequent
			February	4.0-6.0	>6.0	---	---	None	Brief	Frequent
			March	4.0-6.0	>6.0	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	Brief	Frequent
			June	---	---	---	---	None	Brief	Occasional
			July	---	---	---	---	None	Brief	Occasional
			August	---	---	---	---	None	Brief	Occasional
			September	---	---	---	---	None	Brief	Occasional
			October	---	---	---	---	None	Brief	Occasional
			November	---	---	---	---	None	Brief	Frequent
			December	---	---	---	---	None	Brief	Frequent
Melvin, frequently flooded	D	Negligible	January	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			February	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			March	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			April	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			May	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			June	---	---	---	---	None	Brief	Occasional
			July	---	---	---	---	None	Brief	Occasional
			August	---	---	---	---	None	Brief	Occasional
			September	---	---	---	---	None	Brief	Occasional
			October	---	---	---	---	None	Brief	Occasional
			November	---	---	---	---	None	Brief	Frequent
			December	0.0-1.0	>6.0	---	---	None	Brief	Frequent
ChA:										
Chavies-------------------	B	Very low	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
ChB:										
Chavies	B	Low	Jan-Dec	---	---	---	---	None	---	None
ChC:										
Chavies	B	Low	Jan-Dec	---	---	---	---	None	---	None
CkB:										
Chavies	B	Very low	Jan-Dec	---	---	---	---	None	---	None
Urban land	---	---	Jan-Dec	---	---	---	---	None	---	None
CoA:										
Conotton	B	Very low	Jan-Dec	---	---	---	---	None	---	None
CsB:										
Coolville	C	Medium	February	1.5-3.0	2.0-4.0	---	---	None	---	None
			March	1.5-3.0	2.0-4.0	---	---	None	---	None
			April	1.5-3.0	2.0-4.0	---	---	None	---	None
Tilsit	C	Medium	January	2.0-3.0	2.5-5.0	---	---	None	---	None
			February	2.0-3.0	2.5-5.0	---	---	None	---	None
			March	2.0-3.0	2.5-5.0	---	---	None	---	None
			April	2.0-3.0	2.5-5.0	---	---	None	---	None
CuD:										
Culleoka	B	High	Jan-Dec	---	---	---	---	None	---	None
Lowell	C	High	Jan-Dec	---	---	---	---	None	---	None
CuE:										
Culleoka	B	High	Jan-Dec	---	---	---	---	None	---	None
Lowell	C	Very high	Jan-Dec	---	---	---	---	None	---	None
DuC:										
Duncannon	B	Medium	January	3.5-5.0	>6.0	---	---	None	---	None
			February	3.5-5.0	>6.0	---	---	None	---	None
			March	3.5-5.0	>6.0	---	---	None	---	None
DuD:										
Duncannon	B	High	January	3.5-5.0	>6.0	---	---	None	---	None
			February	3.5-5.0	>6.0	---	---	None	---	None
			March	3.5-5.0	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
DuE:										
Duncannon	B	High	January	3.5-5.0	>6.0	---	---	None	---	None
			February	3.5-5.0	>6.0	---	---	None	---	None
			March	3.5-5.0	>6.0	---	---	None	---	None
EkA:										
Elk, rarely flooded	B	Low	January	4.0-6.0	>6.0	---	---	None	Very brief	Rare
			February	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			March	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			April	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
EkB:										
Elk, rarely flooded	B	Medium	January	4.0-6.0	>6.0	---	---	None	Very brief	Rare
			February	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			March	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			April	3.3-4.5	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
GaC:										
Gallia	B	Medium	Jan-Dec	---	---	---	---	None	---	None
GfA:										
Gallipolis	C	Low	January	2.0-3.5	>6.0	---	---	None	---	None
			February	2.0-3.5	>6.0	---	---	None	---	None
			March	2.0-3.5	>6.0	---	---	None	---	None
			April	2.0-3.5	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
GfB:										
Gallipolis----------------	C	Medium	January	2.0-3.5	>6.0	---	---	None	---	None
			February	2.0-3.5	>6.0	---	---	None	---	None
			March	2.0-3.5	>6.0	---	---	None	---	None
			April	2.0-3.5	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
GgA:										
Gallipolis, rarely flooded	C	Low	January	2.0-3.3	>6.0	---	---	None	Brief	Rare
			February	2.0-3.3	>6.0	---	---	None	Brief	Rare
			March	2.0-3.3	>6.0	---	---	None	Brief	Rare
			April	2.0-3.3	>6.0	---	---	None	Brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	2.0-3.3	>6.0	---	---	None	Very brief	Rare
GgB:										
Gallipolis, rarely flooded	C	Medium	January	2.0-3.3	>6.0	---	---	None	Brief	Rare
			February	2.0-3.3	>6.0	---	---	None	Brief	Rare
			March	2.0-3.3	>6.0	---	---	None	Brief	Rare
			April	2.0-3.3	>6.0	---	---	None	Brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	2.0-3.3	>6.0	---	---	None	Very brief	Rare
GhB:										
Gallipolis----------------	C	Low	January	2.0-3.5	>6.0	---	---	None	---	None
			February	2.0-3.5	>6.0	---	---	None	---	None
			March	2.0-3.5	>6.0	---	---	None	---	None
			April	2.0-3.5	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
Urban land----------------	---	---	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
GlF3:										
Gilpin	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Peabody	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GmF:										
Gilpin, very stony	C	High	Jan-Dec	---	---	---	---	None	---	None
Peabody, very stony	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GoF:										
Gilpin, very stony	C	High	Jan-Dec	---	---	---	---	None	---	None
Peabody, very stony	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	---	Jan-Dec	---	---	---	---	None	---	None
GpC:										
Gilpin	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Upshur	D	High	Jan-Dec	---	---	---	---	None	---	None
GpD:										
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GpD3:										
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GpE:										
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GpE3:										
Gilpin	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
GsA:										
Ginat---------------------	D	Negligible	January	0.0-1.0	>6.0	---	Brief	Occasional	---	None
			February	0.0-1.0	>6.0	---	Brief	Occasional	---	None
			March	0.0-1.0	>6.0	---	Brief	Occasional	---	None
			April	0.0-1.0	>6.0	---	Brief	Occasional	---	None
			May	0.0-1.0	>6.0	---	Brief	Occasional	---	None
			June	3.0-5.0	>6.0	---	Brief	Occasional	---	None
			December	3.0-5.0	>6.0	---	Brief	Occasional	---	None
GtA:										
Ginat, rarely flooded-----	D	Negligible	January	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			February	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			March	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			April	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			May	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			June	3.0-5.0	>6.0	---	Brief	Occasional	Very brief	Rare
			July	---	---	---	Brief	Occasional	Very brief	Rare
			August	---	---	---	Brief	Occasional	Very brief	Rare
			September	---	---	---	Brief	Occasional	Very brief	Rare
			October	---	---	---	Brief	Occasional	Very brief	Rare
			November	---	---	---	Brief	Occasional	Very brief	Rare
			December	3.0-5.0	>6.0	---	Brief	Occasional	Very brief	Rare
GvA:										
Ginat, rarely flooded-----	D	Negligible	January	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			February	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			March	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			April	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			May	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			June	3.0-5.0	>6.0	---	Brief	Occasional	Very brief	Rare
			July	---	---	---	Brief	Occasional	Very brief	Rare
			August	---	---	---	Brief	Occasional	Very brief	Rare
			September	---	---	---	Brief	Occasional	Very brief	Rare
			October	---	---	---	Brief	Occasional	Very brief	Rare
			November	---	---	---	Brief	Occasional	Very brief	Rare
			December	3.0-5.0	>6.0	---	Brief	Occasional	Very brief	Rare
GxB:										
Glenford------------------	C	Medium	January	1.5-2.5	2.0-4.0	---	---	None	---	None
			February	1.5-2.5	2.0-4.0	---	---	None	---	None
			March	1.5-2.5	2.0-4.0	---	---	None	---	None
			April	1.5-2.5	2.0-4.0	---	---	None	---	None
			May	1.5-2.5	2.0-4.0	---	---	None	---	None
			December	1.5-2.5	2.0-4.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
GxC:										
Glenford------------------	C	Medium	January	1.5-2.5	2.0-4.0	---	---	None	---	None
			February	1.5-2.5	2.0-4.0	---	---	None	---	None
			March	1.5-2.5	2.0-4.0	---	---	None	---	None
			April	1.5-2.5	2.0-4.0	---	---	None	---	None
			May	1.5-2.5	2.0-4.0	---	---	None	---	None
			December	1.5-2.5	2.0-4.0	---	---	None	---	None
HaA:										
Hackers, rarely flooded---	B	Low	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
HaB:										
Hackers, rarely flooded---	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
HoA:										
Huntington, occasionally flooded------------------	B	Low	January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	Brief	Occasional
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
HuA:										
Huntington, rarely flooded	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
KnA:										
Kanawha, rarely flooded---	B	Low	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
LaB:										
Lakin---------------------	A	Low	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
LaC:										
Lakin	A	Low	Jan-Dec	---	---	---	---	None	---	None
LaD:										
Lakin	A	Medium	Jan-Dec	---	---	---	---	None	---	None
LbB:										
Lakin	A	Low	Jan-Dec	---	---	---	---	None	---	None
Urban land	---	---	Jan-Dec	---	---	---	---	None	---	None
Ld:										
Landfills	---	---	Jan-Dec	---	---	---	---	None	---	None
LlD:										
Lily	B	High	Jan-Dec	---	---	---	---	None	---	None
LlE:										
Lily	B	High	Jan-Dec	---	---	---	---	None	---	None
LsA:										
Lindside, occasionally flooded	C	Low	January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			May	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	1.5-3.0	>6.0	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
LtA:										
Lindside, rarely flooded--	C	Low	January	1.5-3.0	>6.0	---	---	None	Brief	Rare
			February	1.5-3.0	>6.0	---	---	None	Brief	Rare
			March	1.5-3.0	>6.0	---	---	None	Brief	Rare
			April	1.5-3.0	>6.0	---	---	None	Brief	Rare
			May	4.0-6.0	>6.0	---	---	None	Brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	1.5-3.0	>6.0	---	---	None	Very brief	Rare
LvA:										
Lobdell, occasionally flooded------------------	B	Low	January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			May	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	1.5-3.0	>6.0	---	---	None	Very brief	Rare
LzC:										
Lowell--------------------	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Culleoka------------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
McA:										
McGary--------------------	C	Low	January	0.5-1.5	4.0-5.0	---	---	None	---	None
			February	0.5-1.5	4.0-5.0	---	---	None	---	None
			March	0.5-1.5	4.0-5.0	---	---	None	---	None
			April	0.5-1.5	4.0-5.0	---	---	None	---	None
			May	0.5-1.5	4.0-5.0	---	---	None	---	None
Shircliff-----------------	C	Low	January	1.5-3.0	4.0-5.0	---	---	None	---	None
			February	1.5-3.0	4.0-5.0	---	---	None	---	None
			March	1.5-3.0	4.0-5.0	---	---	None	---	None
			April	1.5-3.0	4.0-5.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
MdA:										
Melvin, occasionally flooded------------------	D	Negligible	January	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Occasional
			February	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Occasional
			March	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Occasional
			April	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Occasional
			May	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Occasional
			June	4.0-6.0	>6.0	---	Brief	Occasional	Very brief	Rare
			July	---	---	---	Brief	Occasional	Very brief	Rare
			August	---	---	---	Brief	Occasional	Very brief	Rare
			September	---	---	---	Brief	Occasional	Very brief	Rare
			October	---	---	---	Brief	Occasional	Very brief	Rare
			November	4.0-6.0	>6.0	---	Brief	Occasional	Very brief	Rare
			December	0.0-1.0	>6.0	---	Brief	Occasional	Very brief	Rare
MeA:										
Melvin, rarely flooded----	D	Negligible	January	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			February	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			March	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			April	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			May	0.0-1.0	>6.0	---	Brief	Occasional	Brief	Rare
			June	4.0-6.0	>6.0	---	Brief	Occasional	Very brief	Rare
			July	---	---	---	Brief	Occasional	Very brief	Rare
			August	---	---	---	Brief	Occasional	Very brief	Rare
			September	---	---	---	Brief	Occasional	Very brief	Rare
			October	---	---	---	Brief	Occasional	Very brief	Rare
			November	4.0-6.0	>6.0	---	Brief	Occasional	Very brief	Rare
			December	0.0-1.0	>6.0	---	Brief	Occasional	Very brief	Rare
MgB:										
Monongahela---------------	C	Medium	January	1.5-2.5	2.5-5.0	---	---	None	---	None
			February	1.5-2.5	2.5-5.0	---	---	None	---	None
			March	1.5-2.5	2.5-5.0	---	---	None	---	None
			April	1.5-2.5	2.5-5.0	---	---	None	---	None
			December	1.5-2.5	2.5-5.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
MoA:										
Moshannon, occasionally flooded	B	Low	January	---	---	---	---	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
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
OmA:										
Omulga	C	Medium	January	1.5-2.5	2.5-5.0	---	---	None	---	None
			February	1.5-2.5	2.5-5.0	---	---	None	---	None
			March	1.5-2.5	2.5-5.0	---	---	None	---	None
			April	1.5-2.5	2.5-5.0	---	---	None	---	None
			December	1.5-2.5	2.5-5.0	---	---	None	---	None
OmB:										
Omulga	C	High	January	1.5-2.5	2.5-5.0	---	---	None	---	None
			February	1.5-2.5	2.5-5.0	---	---	None	---	None
			March	1.5-2.5	2.5-5.0	---	---	None	---	None
			April	1.5-2.5	2.5-5.0	---	---	None	---	None
			December	1.5-2.5	2.5-5.0	---	---	None	---	None
PgF:										
Peabody	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
PgF3:										
Peabody	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
Qu:										
Quarries, sand and gravel	---	---	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
SeA:										
Senecaville, occasionally flooded------------------	B	Low	January	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			February	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			March	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			April	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			May	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	1.5-3.0	>6.0	---	---	None	Very brief	Rare
SfA:										
Senecaville, rarely flooded------------------	B	Low	January	1.5-3.0	>6.0	---	---	None	Very brief	Rare
			February	1.5-3.0	>6.0	---	---	None	Very brief	Rare
			March	1.5-3.0	>6.0	---	---	None	Very brief	Rare
			April	1.5-3.0	>6.0	---	---	None	Very brief	Rare
			May	4.0-6.0	>6.0	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	1.5-3.0	>6.0	---	---	None	Very brief	Rare
SnA:										
Sensabaugh, occasionally flooded------------------	B	Very low	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	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			May	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			June	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
SrB:										
Sensabaugh, rarely flooded	B	Low	January	4.0-6.0	>6.0	---	---	None	Extremely brief	Rare
			February	4.0-6.0	>6.0	---	---	None	Extremely brief	Rare
			March	4.0-6.0	>6.0	---	---	None	Extremely brief	Rare
			April	4.0-6.0	>6.0	---	---	None	Extremely brief	Rare
			May	---	---	---	---	None	Extremely brief	Rare
			June	---	---	---	---	None	Extremely brief	Rare
			July	---	---	---	---	None	Extremely brief	Rare
			August	---	---	---	---	None	Extremely brief	Rare
			September	---	---	---	---	None	Extremely brief	Rare
			October	---	---	---	---	None	Extremely brief	Rare
			November	---	---	---	---	None	Extremely brief	Rare
			December	---	---	---	---	None	Extremely brief	Rare
StC:										
Shircliff-----------------	C	High	January	1.5-3.0	4.0-5.0	---	---	None	---	None
			February	1.5-3.0	4.0-5.0	---	---	None	---	None
			March	1.5-3.0	4.0-5.0	---	---	None	---	None
			April	1.5-3.0	4.0-5.0	---	---	None	---	None
SxB:										
Shircliff-----------------	C	High	January	1.5-3.0	4.0-5.0	---	---	None	---	None
			February	1.5-3.0	4.0-5.0	---	---	None	---	None
			March	1.5-3.0	4.0-5.0	---	---	None	---	None
			April	1.5-3.0	4.0-5.0	---	---	None	---	None
McGary--------------------	C	Medium	January	0.5-1.5	4.0-5.0	---	---	None	---	None
			February	0.5-1.5	4.0-5.0	---	---	None	---	None
			March	0.5-1.5	4.0-5.0	---	---	None	---	None
			April	0.5-1.5	4.0-5.0	---	---	None	---	None
			May	0.5-1.5	4.0-5.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TaA:										
Taggart-------------------	C	Low	January	1.0-3.0	>6.0	---	---	None	---	None
			February	1.0-3.0	>6.0	---	---	None	---	None
			March	1.0-3.0	>6.0	---	---	None	---	None
			April	1.0-3.0	>6.0	---	---	None	---	None
			May	4.0-6.0	>6.0	---	---	None	---	None
TfA:										
Taggart, rarely flooded---	C	Low	January	1.0-3.0	>6.0	---	---	None	Brief	Rare
			February	1.0-3.0	>6.0	---	---	None	Brief	Rare
			March	1.0-3.0	>6.0	---	---	None	Brief	Rare
			April	1.0-3.0	>6.0	---	---	None	Brief	Rare
			May	4.0-6.0	>6.0	---	---	None	Brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
ThC:										
Tarhollow-----------------	C	Medium	January	2.0-3.5	3.0-6.0	---	---	None	---	None
			February	2.0-3.5	3.0-6.0	---	---	None	---	None
			March	2.0-3.5	3.0-6.0	---	---	None	---	None
			April	2.0-3.5	3.0-6.0	---	---	None	---	None
			December	2.0-3.5	3.0-6.0	---	---	None	---	None
ThD:										
Tarhollow-----------------	C	Medium	January	2.0-3.5	3.0-6.0	---	---	None	---	None
			February	2.0-3.5	3.0-6.0	---	---	None	---	None
			March	2.0-3.5	3.0-6.0	---	---	None	---	None
			April	2.0-3.5	3.0-6.0	---	---	None	---	None
			December	2.0-3.5	3.0-6.0	---	---	None	---	None
Ud:										
Udorthents----------------	---	---	Jan-Dec	---	---	---	---	None	---	None
Urban land----------------	---	---	Jan-Dec	---	---	---	---	None	---	None
UeB:										
Upshur--------------------	D	High	Jan-Dec	---	---	---	---	None	---	None
UeC:										
Upshur--------------------	D	High	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
UeD:										
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
UgC:										
Upshur	D	High	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	Medium	Jan-Dec	---	---	---	---	None	---	None
UgD:										
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
UgD3:										
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
UgE:										
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	High	Jan-Dec	---	---	---	---	None	---	None
UgE3:										
Upshur	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Gilpin	C	Very high	Jan-Dec	---	---	---	---	None	---	None
VdC:										
Vandalia	D	Medium	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
VdD:										
Vandalia	D	High	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
VdE:										
Vandalia	D	High								
			February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
VsD3:										
Vandalia------------------	D	High	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
VsE3:										
Vandalia------------------	D	Very high	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
VtE:										
Vandalia, very stony------	D	High	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
VxE:										
Vandalia, bouldery--------	D	High	February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
WsA:										
Wheeling------------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
WsB:										
Wheeling------------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
WsC:										
Wheeling------------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
WuB:										
Wheeling------------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
Urban land----------------	---	---	Jan-Dec	---	---	---	---	None	---	None
ZoB:										
Zoar----------------------	C	High	January	1.5-2.5	2.0-4.0	---	---	None	---	None
			February	1.5-2.5	2.0-4.0	---	---	None	---	None
			March	1.5-2.5	2.0-4.0	---	---	None	---	None
			April	1.5-2.5	2.0-4.0	---	---	None	---	None
			December	1.5-2.5	2.0-4.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
ZoC:										
Zoar	C	High	January	1.5-2.5	2.0-4.0	---	---	None	---	None
			February	1.5-2.5	2.0-4.0	---	---	None	---	None
			March	1.5-2.5	2.0-4.0	---	---	None	---	None
			April	1.5-2.5	2.0-4.0	---	---	None	---	None
			December	1.5-2.5	2.0-4.0	---	---	None	---	None

Table 21.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
AeC:							
Allegheny	---	---	---	---	Moderate	Low	High
AfA:							
Ashton, rarely flooded	---	---	---	---	High	Low	Low
AfB:							
Ashton, rarely flooded	---	---	---	---	High	Low	Low
AsA:							
Ashton, rarely flooded	---	---	---	---	High	Low	Low
AsB:							
Ashton, rarely flooded	---	---	---	---	High	Low	Low
AuB:							
Ashton, rarely flooded	---	---	---	---	High	Low	Low
Gallipolis, rarely flooded	---	---	---	---	High	Moderate	Moderate
Urban land	---	---	---	---	---	---	---
CcC:							
Cedarcreek	---	---	---	---	Moderate	Moderate	High
CcE:							
Cedarcreek	---	---	---	---	Moderate	Moderate	High
CdA:							
Chagrin, occasionally flooded	---	---	---	---	Moderate	Low	Moderate
CfA:							
Chagrin, frequently flooded	---	---	---	---	Moderate	Low	Moderate
Melvin, frequently flooded	---	---	---	---	High	High	Low
ChA:							
Chavies	---	---	---	---	Low	Low	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
ChB:							
Chavies----------------	---	---	---	---	Low	Low	Moderate
ChC:							
Chavies----------------	---	---	---	---	Low	Low	Moderate
CkB:							
Chavies----------------	---	---	---	---	Low	Low	Moderate
Urban land-------------	---	---	---	---	---	---	---
CoA:							
Conotton---------------	---	---	---	---	Moderate	Low	High
CsB:							
Coolville--------------	Bedrock (paralithic)	40-60	---	Moderately cemented	High	High	High
Tilsit-----------------	Fragipan	18-30	12-24	Noncemented	High	High	High
	Bedrock (paralithic)	40-60	---	Moderately cemented			
CuD:							
Culleoka---------------	Bedrock (lithic)	20-40	---	Strongly cemented	None	Low	Moderate
Lowell-----------------	Bedrock (lithic)	40-60	---	Indurated	None	High	Moderate
CuE:							
Culleoka---------------	Bedrock (lithic)	20-40	---	Strongly cemented	None	Low	Moderate
Lowell-----------------	Bedrock (lithic)	40-60	---	Indurated	None	High	Moderate
DuC:							
Duncannon--------------	---	---	---	---	High	Low	Moderate
DuD:							
Duncannon--------------	---	---	---	---	High	Low	Moderate
DuE:							
Duncannon--------------	---	---	---	---	High	Low	Moderate
EkA:							
Elk, rarely flooded----	---	---	---	---	High	Low	Low

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
EkB:							
Elk, rarely flooded----	---	---	---	---	High	Low	Low
GaC:							
Gallia-----------------	Bedrock (paralithic)	60-79	---	Moderately cemented	Moderate	Low	High
GfA:							
Gallipolis-------------	---	---	---	---	High	Moderate	Moderate
GfB:							
Gallipolis-------------	---	---	---	---	High	Moderate	Moderate
GgA:							
Gallipolis, rarely flooded---------------	---	---	---	---	High	Moderate	Moderate
GgB:							
Gallipolis, rarely flooded---------------	---	---	---	---	High	Moderate	Moderate
GhB:							
Gallipolis-------------	---	---	---	---	High	Moderate	Moderate
Urban land-------------	---	---	---	---	---	---	---
GlF3:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Peabody----------------	Bedrock (paralithic)	20-40	---	Very weakly cemented	Moderate	High	Moderate
GmF:							
Gilpin, very stony-----	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Peabody, very stony----	Bedrock (paralithic)	20-40	---	Very weakly cemented	Moderate	High	Moderate
GoF:							
Gilpin, very stony-----	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Peabody, very stony----	Bedrock (paralithic)	20-40	---	Very weakly cemented	Moderate	High	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
GoF:							
Rock outcrop-----------	Bedrock (lithic)	---	---	Indurated	---	---	---
GpC:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Upshur-----------------	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
GpD:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Upshur-----------------	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
GpD3:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Upshur-----------------	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
GpE:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Upshur-----------------	Bedrock (paralithic)	40-60	---	Weakly cemented	Moderate	High	Moderate
GpE3:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Upshur-----------------	Bedrock (paralithic)	40-60	---	Weakly cemented	Moderate	High	Moderate
GsA:							
Ginat------------------	---	---	---	---	High	High	High
GtA:							
Ginat, rarely flooded--	---	---	---	---	High	High	High
GvA:							
Ginat, rarely flooded--	---	---	---	---	High	High	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
GxB:							
Glenford	---	---	---	---	High	Moderate	Moderate
GxC:							
Glenford	---	---	---	---	High	Moderate	Moderate
HaA:							
Hackers, rarely flooded	---	---	---	---	Moderate	Low	Moderate
HaB:							
Hackers, rarely flooded	---	---	---	---	Moderate	Low	Moderate
HoA:							
Huntington, occasionally flooded	---	---	---	---	High	Low	Moderate
HuA:							
Huntington, rarely flooded	---	---	---	---	High	Low	Moderate
KnA:							
Kanawha, rarely flooded	---	---	---	---	Moderate	Low	Moderate
LaB:							
Lakin	---	---	---	---	Low	Low	High
LaC:							
Lakin	---	---	---	---	Low	Low	High
LaD:							
Lakin	---	---	---	---	Low	Low	High
LbB:							
Lakin	---	---	---	---	Low	Low	High
Urban land	---	---	---	---	---	---	---
Ld:							
Landfills	---	---	---	---	---	---	---
LlD:							
Lily	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Moderate	High
LlE:							
Lily	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Moderate	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
LsA:							
Lindside, occasionally flooded	---	---	---	---	High	Moderate	Low
LtA:							
Lindside, rarely flooded	---	---	---	---	High	Moderate	Low
LvA:							
Lobdell, occasionally flooded	---	---	---	---	High	Low	Moderate
LzC:							
Lowell	Bedrock (lithic)	40-60	---	Indurated	None	High	Moderate
Culleoka	Bedrock (lithic)	20-40	---	Strongly cemented	None	Low	Moderate
McA:							
McGary	---	---	---	---	Moderate	High	Low
Shircliff	---	---	---	---	Moderate	High	Moderate
MdA:							
Melvin, occasionally flooded	---	---	---	---	High	High	Low
MeA:							
Melvin, rarely flooded	---	---	---	---	High	High	Low
MgB:							
Monongahela	Fragipan	18-30	15-30	Noncemented	Moderate	High	High
MoA:							
Moshannon, occasionally flooded	---	---	---	---	High	Low	Moderate
OmA:							
Omulga	Fragipan	18-34	13-26	Noncemented	High	Moderate	High
OmB:							
Omulga	Fragipan	18-34	13-26	Noncemented	High	Moderate	High
PgF:							
Peabody	Bedrock (paralithic)	20-40	---	Very weakly cemented	Moderate	High	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
PgF:							
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
PgF3:							
Peabody----------------	Bedrock (paralithic)	20-40	---	Very weakly cemented	Moderate	High	Moderate
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
Qu:							
Quarries, sand and gravel----------------	---	---	---	---	---	---	---
SeA:							
Senecaville, occasionally flooded--	---	---	---	---	High	Moderate	Moderate
SfA:							
Senecaville, rarely flooded---------------	---	---	---	---	High	Moderate	Moderate
SnA:							
Sensabaugh, occasionally flooded--	---	---	---	---	Moderate	Low	Low
SrB:							
Sensabaugh, rarely flooded---------------	---	---	---	---	Moderate	Low	Low
StC:							
Shircliff--------------	---	---	---	---	Moderate	High	Moderate
SxB:							
Shircliff--------------	---	---	---	---	Moderate	High	Moderate
McGary-----------------	---	---	---	---	Moderate	High	Low
TaA:							
Taggart----------------	---	---	---	---	High	High	High
TfA:							
Taggart, rarely flooded	---	---	---	---	High	High	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
ThC:							
Tarhollow	Bedrock (paralithic)	40-80	---	Moderately cemented	High	High	Moderate
ThD:							
Tarhollow	Bedrock (paralithic)	40-80	---	Moderately cemented	High	High	Moderate
Ud:							
Udorthents	---	---	---	---	---	---	---
Urban land	---	---	---	---	---	---	---
UeB:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
UeC:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
UeD:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
UgC:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
Gilpin	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
UgD:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
Gilpin	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
UgD3:							
Upshur	Bedrock (paralithic)	40-60	---	Moderately cemented	Moderate	High	Moderate
Gilpin	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
UgE:							
Upshur-----------------	Bedrock (paralithic)	40-60	---	Weakly cemented	Moderate	High	Moderate
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
UgE3:							
Upshur-----------------	Bedrock (paralithic)	40-60	---	Weakly cemented	Moderate	High	Moderate
Gilpin-----------------	Bedrock (paralithic)	20-40	---	Moderately cemented	Moderate	Low	High
VdC:							
Vandalia---------------	---	---	---	---	Moderate	High	Moderate
VdD:							
Vandalia---------------	---	---	---	---	Moderate	High	Moderate
VdE:							
Vandalia---------------	---	---	---	---	Moderate	High	Moderate
VsD3:							
Vandalia---------------	---	---	---	---	Moderate	High	Moderate
VsE3:							
Vandalia---------------	---	---	---	---	Moderate	High	Moderate
VtE:							
Vandalia, very stony---	---	---	---	---	Moderate	High	Moderate
VxE:							
Vandalia, bouldery-----	---	---	---	---	Moderate	High	Moderate
WsA:							
Wheeling---------------	---	---	---	---	Moderate	Low	Moderate
WsB:							
Wheeling---------------	---	---	---	---	Moderate	Low	Moderate
WsC:							
Wheeling---------------	---	---	---	---	Moderate	Low	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
WuB:							
Wheeling	---	---	---	---	Moderate	Low	Moderate
Urban land	---	---	---	---	---	---	---
ZoB:							
Zoar	---	---	---	---	Moderate	High	High
ZoC:							
Zoar	---	---	---	---	Moderate	High	High

Table 22.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Allegheny	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Ashton	Fine-silty, mixed, active, mesic Mollic Hapludalfs
Cedarcreek	Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents
Chagrin	Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Chavies	Coarse-loamy, mixed, active, mesic Ultic Hapludalfs
*Conotton	Loamy-skeletal, mixed, active, mesic Typic Hapludalfs
Coolville	Fine, mixed, active, mesic Aquultic Hapludalfs
Culleoka	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Duncannon	Coarse-silty, mixed, active, mesic Ultic Hapludalfs
Elk	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Gallia	Fine-loamy, siliceous, active, mesic Typic Paleudalfs
Gallipolis	Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs
Gilpin	Fine-loamy, mixed, active, mesic Typic Hapludults
Ginat	Fine-silty, mixed, active, mesic Typic Endoaqualfs
Glenford	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Hackers	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Huntington	Fine-silty, mixed, active, mesic Fluventic Hapludolls
Kanawha	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Lakin	Mixed, mesic Lamellic Udipsamments
Lily	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Lindside	Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts
Lobdell	Fine-loamy, mixed, active, mesic Fluvaquentic Eutrudepts
Lowell	Fine, mixed, active, mesic Typic Hapludalfs
McGary	Fine, mixed, active, mesic Aeric Epiaqualfs
Melvin	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Monongahela	Fine-loamy, mixed, semiactive, mesic Typic Fragiudults
Moshannon	Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts
Omulga	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Peabody	Fine, mixed, active, mesic Ultic Hapludalfs
Senecaville	Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts
Sensabaugh	Fine-loamy, mixed, semiactive, mesic Dystric Fluventic Eutrudepts
Shircliff	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Taggart	Fine-silty, mixed, active, mesic Aeric Epiaqualfs
Tarhollow	Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs
Tilsit	Fine-silty, mixed, semiactive, mesic Typic Fragiudults
Upshur	Fine, mixed, superactive, mesic Typic Hapludalfs
Vandalia	Fine, mixed, active, mesic Typic Hapludalfs
Wheeling	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Zoar	Fine, mixed, semiactive, mesic Aquic Hapludults

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