United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Tennessee Agricultural Experiment Station, Lincoln County Board of Commissioners, Tennessee Department of Agriculture, and Lincoln County Soil Conservation District

Soil Survey of Lincoln County, Tennessee

How To Use This Soil Survey

The information provided in this publication can be useful in planning the use and management of small areas. The text includes descriptions of detailed soil map units and provides an explanation of the information presented in the tables, or soil reports, which are available via the Web Soil Survey of the Natural Resources Conservation Service (accessible from the Soils Web site at http://soils.usda.gov). The publication also includes a glossary of terms used in the text and tables and a list of references.

Bookmarks and links in the publication allow the user to navigate from one part of the text to another. Maps showing soil lines and map unit symbols can be accessed for a particular area of interest through Web Soil Survey (by clicking on the “Soil Map” tab). The symbols on the maps represent the detailed soil map units in the area. These map units are listed in the bookmarks panel of the text. Information about the map units can be accessed by clicking on the appropriate bookmark.

The bookmarks panel of the text outlines the contents of this publication.

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

Major fieldwork for this soil survey was completed in 1994. Soil names and descriptions were approved in 1999. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation Service, the Tennessee Agricultural Experiment Station, the Lincoln County Board of Commissioners, the Tennessee Department of Agriculture, and the Lincoln County Soil Conservation District.

Cover: Soils in an area of the Etowah-Sequatchie-Arrington general soil map unit. These very deep, well drained soils are along terraces and flood plains of the Elk River. They are well suited to pasture, hay, and cropland.

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

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Issued 2004

Foreword

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

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

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

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

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. 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.

James W. Ford
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Lincoln County, Tennessee

By Debra K. Brasfield, Natural Resources Conservation Service

Soils surveyed by Debra K. Brasfield, Brandon T. Dennis, Charles L. Davis, David W. Thomas, and Jack Colflesh, Natural Resources Conservation Service, and Roger D. Spry and Donald B. Holzer, Lincoln County Soil Conservation District

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Lincoln County Soil Conservation District, Lincoln County Board of Commissioners, Tennessee Agricultural Experiment Station, and Tennessee Department of Agriculture

Lincoln County is in the southern part of middle Tennessee (fig. 1). It is bounded on the north by Bedford County, on the east by Franklin and Moore Counties, and on the west by Giles and Marshall Counties, Tennessee. It is bounded on the south by Limestone and Madison Counties, Alabama. According to the 1990 Census, the population of the county is 28,157. Fayetteville is the county seat and located in the geographical center of the county. The county comprises an area of 365,300 acres, or 571 square miles.

The three major economic enterprises in Lincoln County are agriculture, industry, and real estate. Corn, grain and silage, wheat, and soybeans are the main agricultural commodities. Other crops grown are cotton and vegetables, such as Irish potatoes and sweet potatoes. Apple and peach orchards are important in the southern part of the county. Beef and dairy cattle are also an important resource in the county. In 1991, Lincoln County was ranked second in the state for beef cattle and calf production and fourth for dairy cattle *(4)*.

The county has diverse manufacturing companies, which employ a significant part of the population. The companies include manufacturers of air conditioners and furnaces, bi-metallics, snack foods, cotton yarn, and clothing.

This survey updates the survey of Lincoln County, Tennessee, published in 1946 *(5)*. It provides additional information and has larger maps, which show the soils in greater detail.

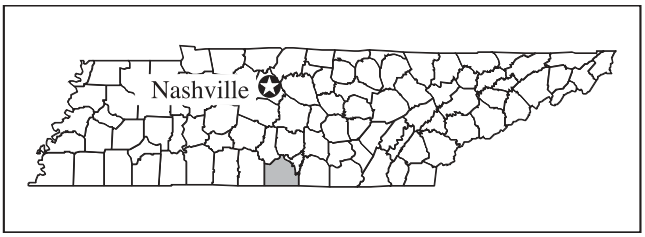

Figure 1.—Location of Lincoln County in Tennessee.

General Nature of the County

This section gives general information about Lincoln County. It discusses history and development, transportation, geology, physiography and drainage, and climate.

History and Development

In 1806, the Cherokee and Chickasaw Indian tribes ceded the territory that includes the survey area to the United States. When Lincoln County was originally established, the State Legislature set aside funds to purchase the land on which the county seat was to be located. Ezekial Norris sold the 100 acres for the town site. The town was named Fayetteville, in honor of Fayetteville, North Carolina, because many of the settlers were from that area. Lincoln County was named in honor of General Benjamin Lincoln, a

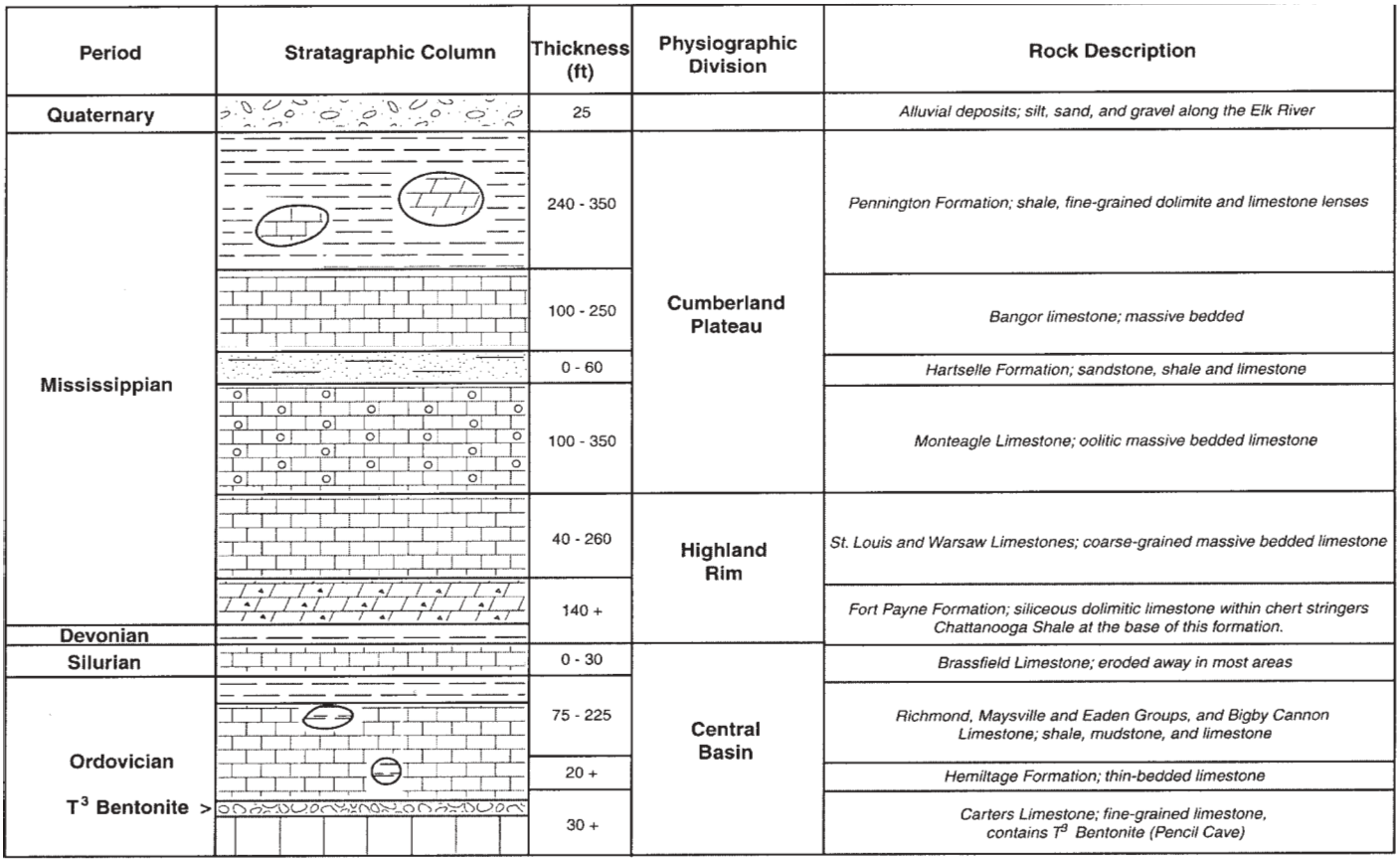

Figure 2.—Stratagraphic column of Lincoln County, Tennessee.

Revolutionary War hero. Lincoln County's gravity flow water system was the first of its kind in the United States.

Transportation

Lincoln County has a system of six state and federal highways. Because of the excellent network of county, State, and Federal highways, every part of the county is accessible for the easy transport of farm products and freight. A community airport near Fayetteville provides service for small aircraft. The nearest commercial airport is in Huntsville, Alabama.

Geology

By B.A. Hartman, Geologist, Natural Resources Conservation Service.

The survey area lies in the Nashville Basin and Highland Rim physiographic divisions of Tennessee *(3)*. There is one small portion of the Cumberland Plateau physiographic division in the extreme southeastern corner of the county. The survey area is underlain entirely by rocks of sedimentary origin, primarily limestone (fig. 2).

For the basis of this survey, there are four major rock groups related to the soils in Lincoln County. They are the Fort Payne Formation; an Ordovician-age unit consisting of the Mannie Shale, Fernvale Limestone, Leipers Limestone, and Catheys Limestone; the Bigby-Cannon Limestone and the Hermitage Limestone; and the Carters Limestone. The Carters Limestone is the oldest exposed formation in the county and contains the T^3 bentonite bed, which is known as the "Pencil Cave" to drillers in the area.

The northern part of the county is underlain by Ordovician limestones and shales that are topped by the Fort Payne Formation. The central portion of the county is underlain by Ordovician limestones and shales and has scattered remnants of the Fort Payne Formation capping the hills. The southern part of the county is predominantly underlain by the Fort Payne Formation. Rocks representing the Silurian system are limited to the west-central section of the county and form a thin collar around the ridges. Elsewhere, the Silurian system has eroded away.

At the base of the Fort Payne Formation is the

Chattanooga Shale, which ranges between 5 and 10 feet in thickness. The Chattanooga Shale is a regional confining layer, which means it restricts the vertical movement of ground water. As a result, springs form in the basal area of the Fort Payne Formation and yields from water wells in this area are as much as 100 gallons per minute.

A unique part of the geology of the county is a "cryptoexplosion site" located in the Howell community. It is called the Howell Structure. The Howell Structure is approximately 1 mile in diameter and composed of Ordovician Breccia, ranging in size from a fraction of an inch to several feet. It is classified as an impact structure. Impact structures result from the impact of objects with the earth's surface. The impact area is raised up in relation to the surrounding terrain. The age of the Howell Structure is thought to be of the Middle Devonian time because the rocks of the Mississippian and Late Devonian Periods are not structurally disturbed and the lower rocks of the Silurian and Ordovician Periods are structurally disturbed.

Physiography and Drainage

Elevations in Lincoln County range from about 700 feet above sea level in the Nashville Basin to 950 feet on the Highland Rim *(8)*.

The northern two-thirds of the county is in the Nashville Basin. It is characterized by numerous narrow valleys that are separated by moderately steep or steep hillsides and narrow ridges. These ridges are remnants of the Highland Rim. Elevations on the ridges range from 1,000 to 900 feet. These remnants of the Highland Rim are capped with cherty limestone. Nearly all of this area is underlain by limestone, and outcrops of this bedrock are common. Along the long, steep hillsides and footslopes, the soils range from deep and loamy to shallow and clayey with rock outcrops. Drainage is south into the Elk River, which flows westward through the approximate middle of the county and onward to the Tennessee River. Norris, Cane, and Swan Creeks are important tributaries that flow into the Elk River from the north.

The southern one-third of the county consists of the Highland Rim. Elevations are about 1,000 feet. This area gently slopes southward. Elevations decrease from about 1,000 feet in the northern part to 900 feet in the southern part. The terrain is nearly level to moderately sloping. Broad upland flats separate slight humps or swells and lie along meandering drainageways. The soils range from well drained on the slight rises to poorly drained on the low flats and in depressional areas. They formed in 2 to 3 feet of loess over clayey residuum from limestone. Some soils have fragipans and slow permeability. Drainage is not well developed on the Highland Rim but is generally southward into the Flint River and Limestone Creek to the Tennessee River. There is some drainage north into the Elk River.

A small area of the Cumberland Plateau escarpment, on the western front of the Cumberland Plateau, exists in the southwestern corner of the county. Only the lower part of the geological formations of the escarpment outcrops in Lincoln County, in an area of about 2 square miles.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Fayetteville, Tennessee, in the period 1957 to 1988. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 38 degrees F and the average daily minimum temperature is 27 degrees. The lowest temperature on record, which occurred at Fayetteville on January 30, 1966, is -26 degrees. In summer, the average temperature is 80 degrees and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred at Fayetteville on July 17, 1980, is 103 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 52 inches. Of this, 25 inches, or approximately 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 21 inches. The heaviest 1-day rainfall during the period of record was 8.82 inches at Fayetteville on March 16, 1973. Thunderstorms occur on about 47 days each year.

The average seasonal snowfall is about 5 inches. The greatest snow depth at any one time during the period of record was 11 inches. On an average, 3 days of the year have at least 1 inch of snow on the ground.

The average relative humidity in midafternoon is about 80 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 60 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the northeast. Average windspeed is highest, 9 miles per hour, in spring.

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 generally 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 area.

General Soil Map Units

The general soil map 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. Hawthorne-Dellrose-Mimosa

Moderately deep to very deep, gently sloping to steep, well drained to excessively drained soils that formed in residuum from limestone and colluvium (fig. 3)

Setting

Landscape: Narrow, gently sloping to moderately steep ridgetops, steep side slopes, and footslopes (fig. 4)
Slope range: 5 to 45 percent

Extent and Composition

Percent of the survey area: 35
Hawthorne soils—41 percent
Dellrose soils—32 percent
Mimosa soils—18 percent
Minor soils (including Barfield, Ashwood, Armour, Arrington, and Ennis)—9 percent

Soil Properties and Qualities

Hawthorne

Drainage class: Somewhat excessively drained
Position on the landform: Ridgetops and steep hillsides
Parent material: Residuum of siltstone and cherty limestone
Surface layer texture: Gravelly silt loam
Slope range: 5 to 45 percent

Dellrose

Drainage class: Well drained
Position on the landform: Hillsides
Parent material: Colluvium and limestone residuum
Surface layer texture: Silt loam
Slope range: 12 to 45 percent

Mimosa

Drainage class: Well drained
Position on the landform: Footslopes
Parent material: Clayey residuum of limestone
Surface layer texture: Silt loam
Slope range: 5 to 35 percent

Use and Management

Cropland

Suitability: Unsuited
Major limitations: Slope, severe hazard of erosion, and areas of rock outcrop

Pasture and hay

Suitability: Hawthorne—unsuited; Dellrose and Mimosa—suited
Major limitations: Slope, areas of rock outcrop, and droughtiness

Woodland

Suitability: Well suited
Major limitations: Slope, hazard of erosion, and depth to bedrock

Residential and commercial uses

Suitability: Unsuited
Major limitations: Slope, depth to bedrock, slow permeability, and seepage

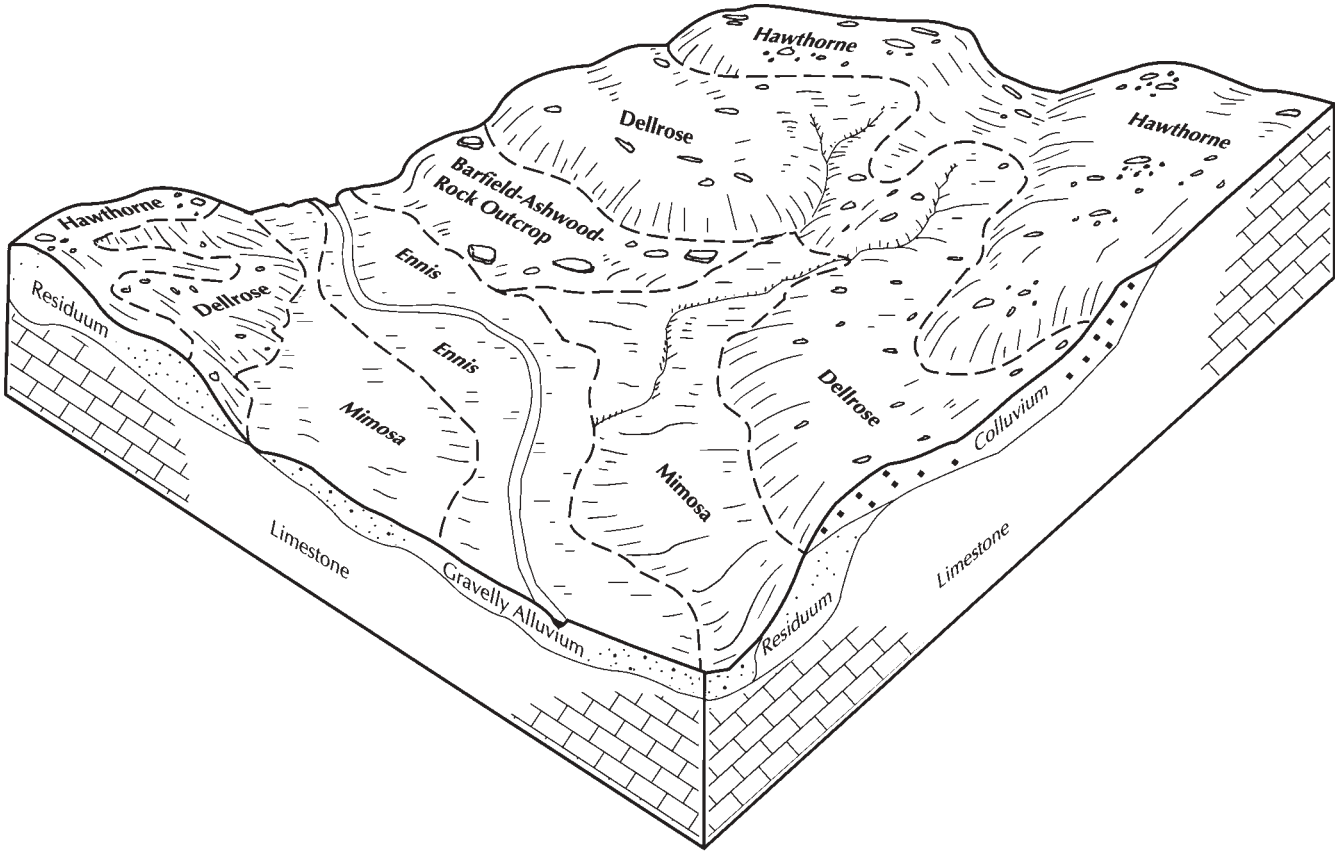

Figure 3.—Typical pattern of soils and parent material in the Hawthorne-Dellrose-Mimosa general soil map unit.

2. Mountview-Dickson-Taft-Guthrie

Very deep, nearly level to strongly sloping, well drained to poorly drained soils that formed in loess and residuum from limestone and that commonly have a fragipan (fig. 5)

Setting

Landscape: Nearly level to strongly sloping upland flats and depressions
Slope range: 0 to 12 percent

Extent and Composition

Percent of the survey area: 23
Mountview soils—29 percent
Dickson soils—29 percent
Taft soils—18 percent
Guthrie soils—15 percent
Minor soils (including Bewleyville, Dewey, and Sengtown)—9 percent

Soil Properties and Qualities

Mountview

Drainage class: Well drained
Position on the landform: Ridges and side slopes
Parent material: Loess and residuum from limestone
Surface layer texture: Silt loam
Slope range: 2 to 12 percent

Dickson

Drainage class: Moderately well drained
Position on the landform: Ridges and side slopes
Parent material: Loess and residuum from limestone
Surface layer texture: Silt loam
Slope range: 2 to 12 percent

Taft

Drainage class: Somewhat poorly drained
Position on the landform: Upland flats and depressions
Parent material: Loess and residuum from limestone

Figure 4.—Pasture and woodland are the major land uses of the soils in the Hawthorne-Dellrose-Mimosa general soil map unit.

Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Guthrie

Drainage class: Poorly drained
Position on the landform: Depressions
Parent material: Loess and residuum from limestone
Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Use and Management

Cropland

Suitability: Mountview and Dickson—well suited; Taft and Guthrie—poorly suited
Major limitations: Wetness, hazard of erosion, rooting depth, and ponding

Pasture and hay

Suitability: Mountview, Dickson, and Taft—well suited; Guthrie—poorly suited
Major limitations: Seasonal wetness and ponding in areas of the Guthrie soils

Woodland

Suitability: Well suited
Major limitations: Ponding and wetness

Residential and commercial uses

Suitability: Mountview and Dickson—suited; Taft and Guthrie—poorly suited

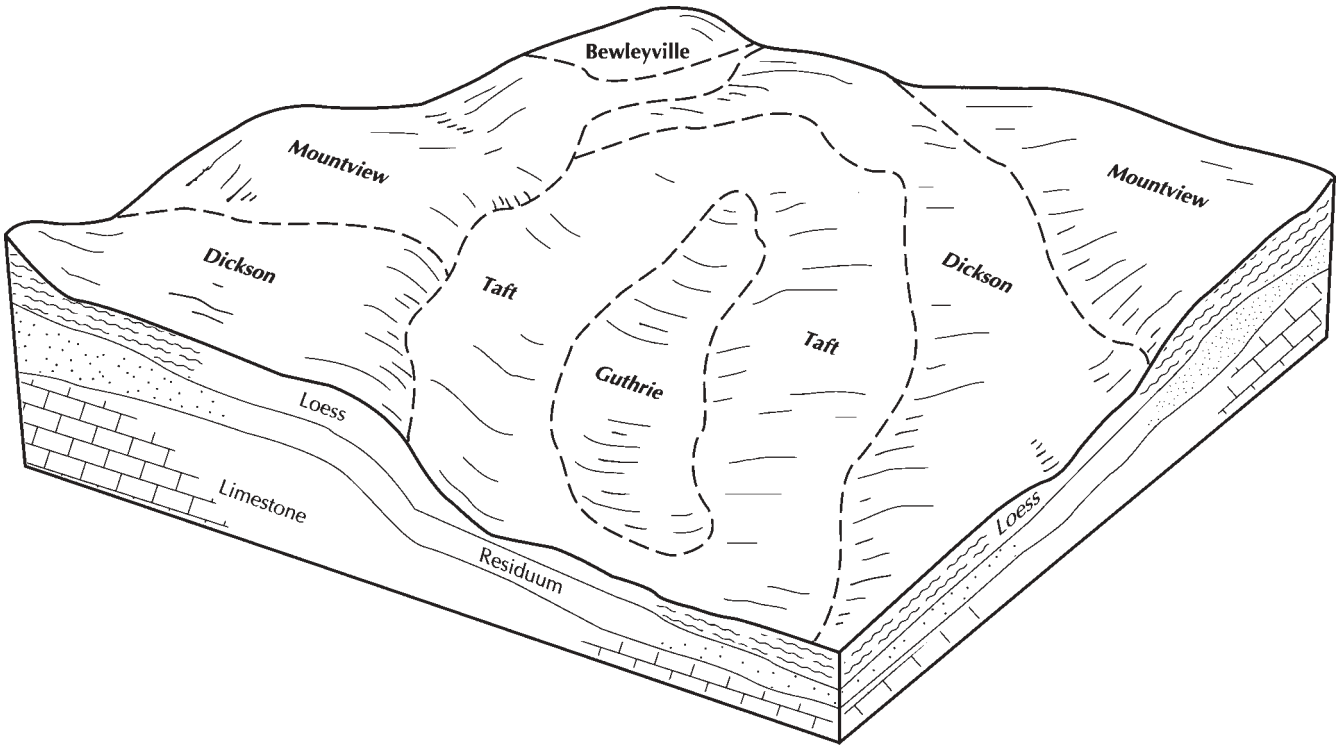

Figure 5.—Typical pattern of soils and parent material in the Mountview-Dickson-Taft-Guthrie general soil map unit.

Major limitations: Perched water table, seasonal wetness, and ponding

3. Etowah-Sequatchie-Arrington

Very deep, nearly level to moderately steep, well drained soils that formed in alluvium (fig. 6)

Setting

Landscape: Nearly level flood plains and gently sloping to moderately steep stream terraces
Slope range: 0 to 20 percent

Extent and Composition

Percent of the survey area: 12
Etowah soils—45 percent
Sequatchie soils—20 percent
Arrington soils—18 percent
Minor soils (including Lindell, Armour, Egam, and Mimosa)—17 percent

Soil Properties and Qualities

Etowah

Drainage class: Well drained
Position on the landform: Stream terraces
Parent material: Alluvium
Surface layer texture: Silt loam
Slope range: 2 to 20 percent

Sequatchie

Drainage class: Well drained
Position on the landform: Stream terraces
Parent material: Loamy alluvium
Surface layer texture: Loam
Slope range: 2 to 5 percent

Arrington

Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Alluvium
Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Use and Management

Cropland

Suitability: Well suited

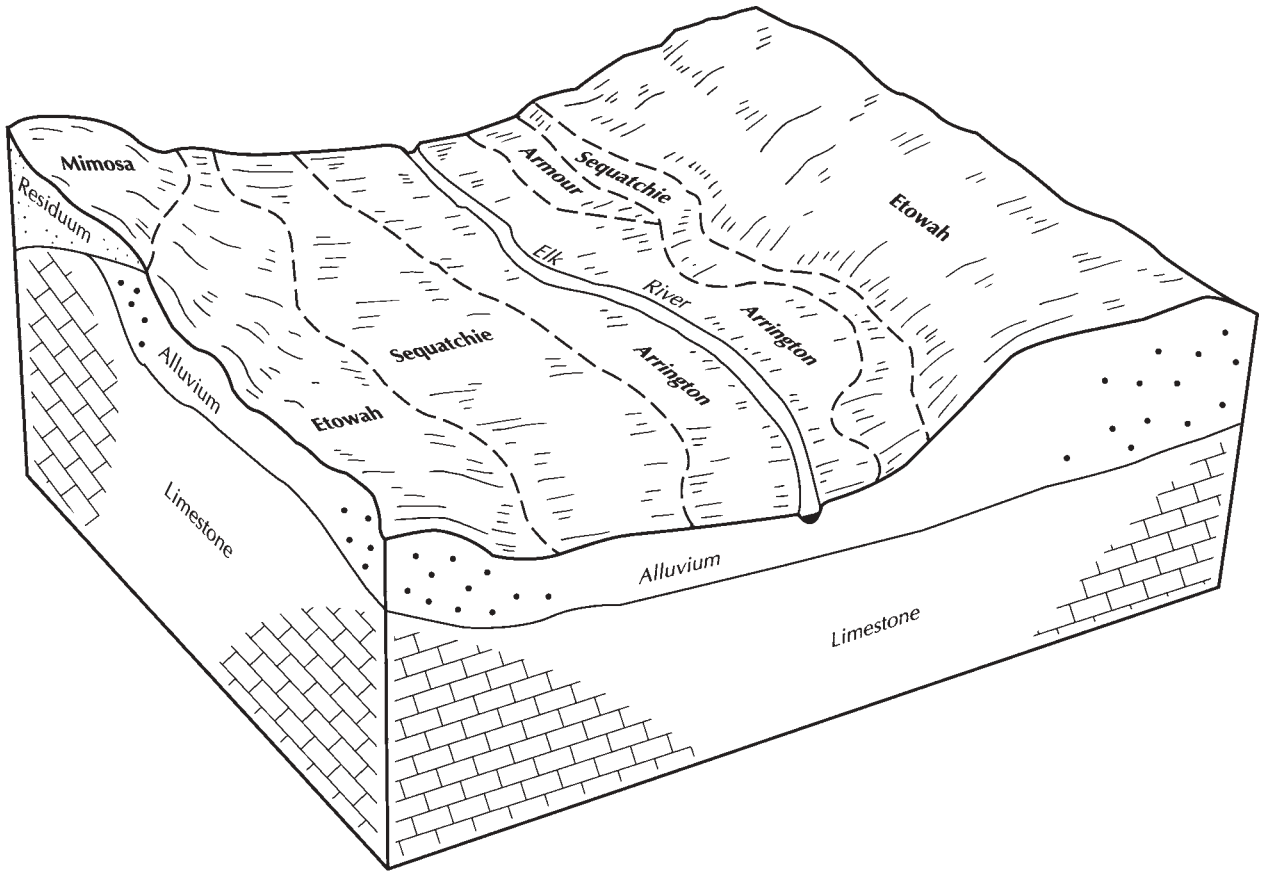

Figure 6.—Typical pattern of soils and parent material in the Etowah-Sequatchie-Arrington general soil map unit.

Pasture and hay

Suitability: Well suited

Woodland

Suitability: Well suited

Residential and commercial uses

Suitability: Etowah and Sequatchie—well suited;
Arrington—poorly suited
Major limitations: Slope and flooding

4. Mimosa-Barfield-Rock outcrop

Deep to shallow, gently sloping to steep soils that formed in residuum from limestone and areas of rock outcrop (fig. 7)

Setting

Landscape: Strongly sloping to steep hillsides and footslopes
Slope range: 5 to 40 percent

Extent and Composition

Percent of the survey area: 30
Mimosa soils—40 percent
Barfield soils—19 percent
Rock outcrop—15 percent
Minor soils (including Armour, Ashwood, Hampshire, Egam, Tupelo, Capshaw, and Lindell)—26 percent

Soil Properties and Qualities

Mimosa

Drainage class: Well drained
Position on the landform: Hillsides and footslopes
Parent material: Clayey residuum from limestone
Surface layer texture: Silt loam
Slope range: 5 to 35 percent

Barfield

Drainage class: Well drained
Position on the landform: Hillsides

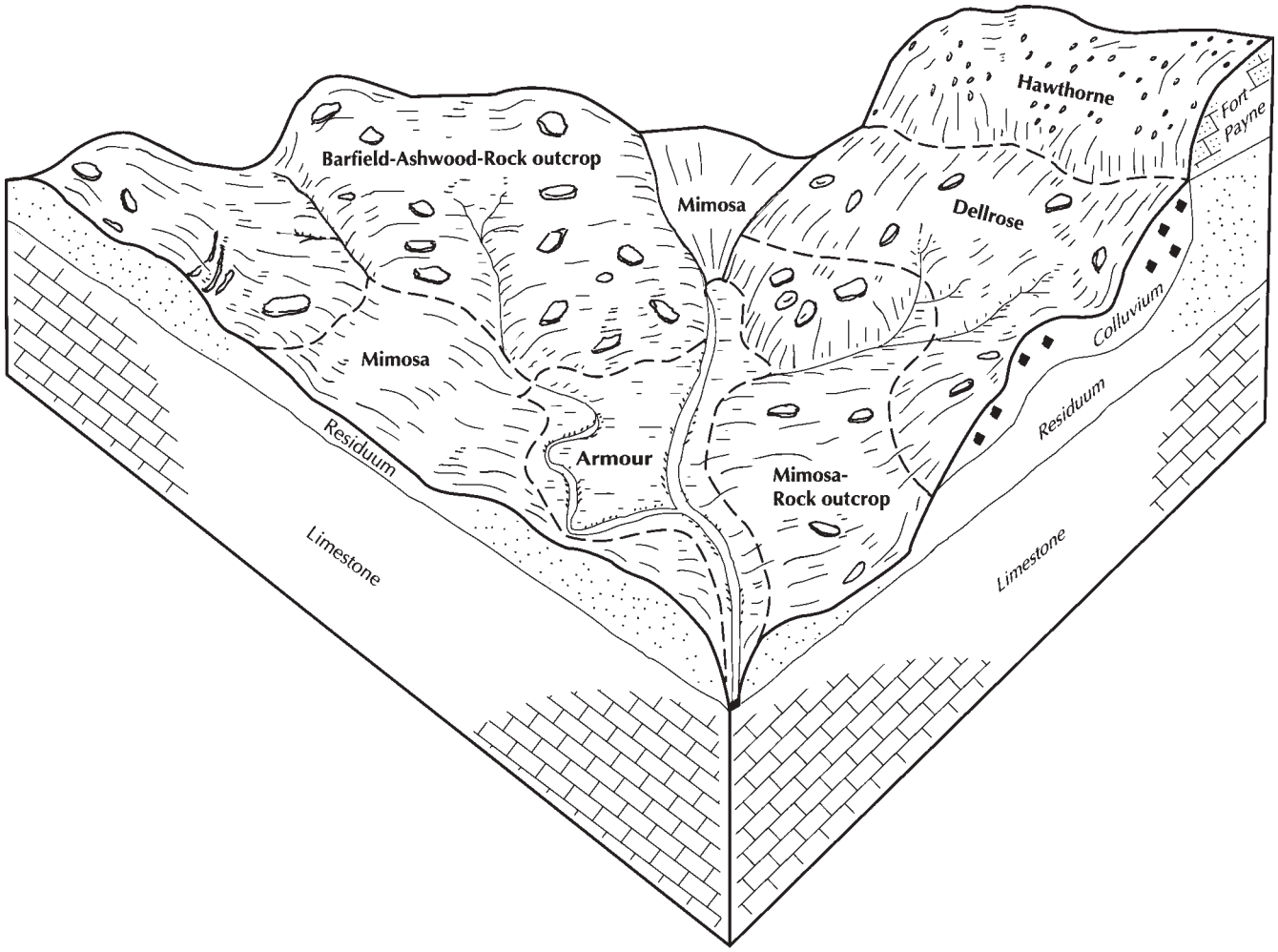

Figure 7.—Typical pattern of soils and parent material in the Mimosa-Barfield-Rock outcrop general soil map unit.

Parent material: Residuum from limestone
Surface layer texture: Silty clay
Slope range: 5 to 40 percent

Rock outcrop

Rock outcrop consists of shelves of limestone bedrock that extend from a few inches to 3 or 4 feet above the surface of the soil.

Use and Management

Cropland

Suitability: Unsuited
Major limitations: Areas of rock outcrop, slope, depth to bedrock, and hazard of erosion

Pasture and hay

Suitability: Mimosa—suited; Barfield—poorly suited; Rock outcrop—unsuited
Major limitations: Areas of rock outcrop, slope, depth to bedrock, and droughtiness

Woodland

Suitability: Suited
Major limitations: Slope, areas of rock outcrop, depth to bedrock, and hazard of erosion

Residential and commercial uses

Suitability: Unsuited
Major limitations: Slope, depth to bedrock, slow or very slow permeability, and areas of rock outcrop

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 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 “included” areas that belong to other taxonomic classes.

Most included 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, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. 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 included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas 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 included areas 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, Mountview silt loam, 2 to 5 percent slopes, is a phase of the Mountview series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or

no vegetation. The Rock outcrop part of Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes, 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.

Ag—Agee silty clay loam, rarely flooded

Setting

Landscape position: Low stream terraces and broad flat areas in limestone valleys
Shape of areas: Irregular
Size of areas: 5 to 50 acres
Slope range: 0 to 2 percent
Major uses: Pasture

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Very slow
Flood hazard: Rare
Available water capacity: Moderate
Depth to seasonal high water table: 0 to 1 foot in winter and spring
Soil reaction: Moderately acid to slightly alkaline
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 10 inches—very dark gray silty clay loam

Subsoil:
10 to 14 inches—dark gray silty clay
14 to 26 inches—dark gray clay that has olive gray mottles
26 to 42 inches—gray clay that has olive mottles
42 to 60 inches—mottled gray, light olive gray, olive, and light olive brown clay

Inclusions

- Arrington soils in narrow areas adjacent to drainageways
- Egam soils in similar positions on low stream terraces

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- The seasonal high water table may delay planting and harvesting in some years.
- Subsurface tile drains and surface ditches help to remove excess water.

Capability subclass: 4w

Pasture and hay

Suitability: Suited
General management considerations:
- Grazing before plants are well established or grazing when the soil is wet may result in damage to the soil and plants and allow the invasion of undesirable species.

Woodland

Suitability: Suited to water-tolerant species
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- Performing field operations during dry periods minimizes damage to the soil.
- Planting water-tolerant seedlings on raised beds increases survival rates.
- Harvesting by area selection methods helps to prevent windthrow of the remaining trees.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
- The very slow permeability and wetness are limitations affecting septic tank absorption fields.
- The flooding, wetness, and shrink-swell potential are limitations affecting dwellings with and without basements.
- The shrink-swell potential, low soil strength, and wetness are limitations affecting local roads and streets.
- The soil limitations are difficult and costly to overcome.
- Other sites in the survey area should be considered for urban development.

AmB—Armour silt loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces and footslopes
Shape of areas: Irregular
Size of areas: 5 to 120 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained

Figure 8.—Tobacco grows well on Armour silt loam, 2 to 5 percent slopes.

Permeability: Moderate
Flood hazard: Rare
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Slightly acid to strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
9 to 16 inches—brown silt loam
16 to 28 inches—strong brown silty clay loam
28 to 45 inches—brown silty clay loam that has strong brown mottles
45 to 60 inches—brown silty clay loam

Inclusions

- Mimosa soils on the higher landscapes
- Arrington soils on flood plains
- Etowah soils on the adjacent higher landscapes
- Areas that have a gravelly surface layer and subsoil

Use and Management

Cropland

Suitability: Well suited (fig. 8)

General management considerations:
• Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• Maintaining permanent plant cover helps to keep erosion to a minimum.
• Alfalfa grows well and, if seeded with grass, helps to control erosion.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
• Septic systems may require special designs.
• Suitable base material should be provided before road surfaces are constructed.

Ar—Arrington silt loam, frequently flooded

Setting

Landscape position: Flood plains
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: Frequent for brief periods from December to April
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Slightly acid to slightly alkaline
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
10 to 24 inches—very dark grayish brown silt loam
24 to 34 inches—very dark grayish brown silt loam
34 to 51 inches—very dark grayish brown silt loam that has dark brown mottles
51 to 60 inches—yellowish brown, dark grayish brown, and strong brown silty clay loam

Inclusions

• Armour soils on adjacent terraces
• Egam soils on similar landscapes
• Similar soils that have sandy textures in the surface layer

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Planting and harvesting operations may be delayed because of flooding.
• Planting short-season annuals later in spring, when the hazard of flooding is reduced, is recommended.
Capability subclass: 3w

Pasture and hay

Suitability: Well suited
General management considerations:
• Species that can tolerate brief periods of flooding, such as tall fescue and white clover, should be selected for planting.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• Flooding is the major limitation affecting urban development, and it is difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

BaC—Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes

Setting

Landscape position: Moderately steep hillsides
Shape of areas: Irregular

Size of areas: 5 to 375 acres
Major uses: Woodland

Composition

Barfield soil: 37 percent
Ashwood soil: 31 percent
Rock outcrop: 25 percent
Minor soils: 7 percent

Properties and Qualities of the Barfield and Ashwood Soils

Drainage class: Barfield—well drained to excessively drained; Ashwood—well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Barfield—very low; Ashwood—low
Depth to seasonal high water table: None
Soil reaction: Slightly acid to slightly alkaline

Typical Profile

Barfield

Surface layer:
0 to 7 inches—very dark grayish brown silty clay

Subsoil:
7 to 9 inches—dark brown clay
9 to 13 inches—light olive brown clay that has grayish brown mottles
13 to 16 inches—light olive brown clay that has strong brown and grayish brown mottles
16 inches—hard limestone bedrock

Ashwood

Surface layer:
0 to 8 inches—very dark grayish brown silty clay loam

Subsoil:
8 to 18 inches—yellowish brown clay
18 to 22 inches—yellowish brown clay that has strong brown mottles
22 to 24 inches—yellowish brown clay that has red mottles
24 inches—hard limestone bedrock

Rock outcrop

Rock outcrop consists of shelves of limestone bedrock that extend from a few inches to 3 or 4 feet above the surface of the soil.

Inclusions

- Mimosa soils on similar landscapes
- Small areas that are more than 50 percent rock outcrop

Use and Management

Cropland

Suitability: Unsuited (fig. 9)
General management considerations:
- The slope, areas of rock outcrop, rooting depth, and low or very low available water capacity are severe limitations affecting cropland.

Capability subclass: 6s

Pasture and hay

Suitability: Unsuited
General management considerations:
- The slope, areas of rock outcrop, rooting depth, and low or very low available water capacity are severe limitations affecting pasture and hay.

Woodland

Suitability: Poorly suited
General management considerations:
- The equipment limitations, seedling mortality rates, windthrow hazard, plant competition, low or very low available water capacity, rooting depth, and areas of rock outcrop are severe limitations affecting tree growth and woodland management. These limitations are difficult to overcome.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
- The areas of rock outcrop, shallow depth to bedrock, slope, low soil strength, and high shrink-swell potential are the major limitations affecting urban development. These limitations are very difficult and costly to overcome.
- Other sites in the survey area should be considered for urban development.

BaE—Barfield-Ashwood-Rock outcrop complex, 20 to 40 percent slopes

Setting

Landscape position: Steep hillsides
Shape of areas: Irregular
Size of areas: 5 to 250 acres
Major uses: Woodland

Composition

Barfield soil: 37 percent
Ashwood soil: 31 percent

Figure 9.—Areas of Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes, are unsuited to cropland because of the shallow soils and rough terrain.

Rock outcrop: 25 percent
Minor soils: 7 percent

Properties and Qualities of the Barfield and Ashwood Soils

Drainage class: Barfield—well drained to excessively drained; Ashwood—well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Barfield—very low; Ashwood—low
Depth to seasonal high water table: None
Soil reaction: Slightly acid to slightly alkaline

Typical Profile

Barfield

Surface layer:
0 to 7 inches—very dark grayish brown silty clay

Subsoil:
7 to 9 inches—dark brown clay
9 to 13 inches—light olive brown clay that has grayish brown mottles
13 to 16 inches—light olive brown clay that has strong brown and grayish brown mottles
16 inches—hard limestone bedrock

Ashwood

Surface layer:
0 to 8 inches—very dark grayish brown silty clay loam

Subsoil:
8 to 18 inches—yellowish brown clay
18 to 22 inches—yellowish brown clay that has strong brown mottles
22 to 24 inches—yellowish brown clay that has red mottles
24 inches—hard limestone bedrock

Rock outcrop

Rock outcrop consists of shelves of limestone bedrock that extend from a few inches to 3 or 4 feet above the surface of the soil.

Inclusions

- Mimosa soils on similar landscapes
- Small areas that are more than 50 percent rock outcrop

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- The slope, rooting depth, areas of rock outcrop, and low or very low available water capacity are severe limitations affecting cropland.

Capability subclass: 7s

Pasture and hay

Suitability: Unsuited
General management considerations:
- The slope, rooting depth, areas of rock outcrop, and low or very low available water capacity are severe limitations affecting pasture and hay.

Woodland

Suitability: Poorly suited
General management considerations:
- The equipment limitations, seedling mortality rates, windthrow hazard, plant competition, low or very low available water capacity, rooting depth, and areas of rock outcrop are severe limitations affecting tree growth and woodland management. These limitations are difficult to overcome.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
- The areas of rock outcrop, shallow depth to bedrock, slope, low soil strength, and high shrink-swell potential are the major limitations affecting urban development. These limitations are very difficult and costly to overcome.
- Other sites in the survey area should be considered for urban development.

BwB—Bewleyville silt loam, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Shape of areas: Irregular
Size of areas: 5 to 130 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 15 inches—strong brown silt loam
15 to 30 inches—yellowish red silty clay loam
30 to 43 inches—red silty clay loam that has yellowish brown mottles
43 to 65 inches—red silty clay loam that has strong brown and yellowish brown mottles

Inclusions

- Dickson soils on the lower landscapes

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.

Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• Additions of lime and fertilizer, controlled grazing, and adequate weed control are management practices that can maintain the productivity of forage and hay plants.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• Suitable base material should be provided before road surfaces are constructed.

BwC—Bewleyville silt loam, 5 to 12 percent slopes

Setting

Landscape position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 17 inches—strong brown silt loam
17 to 32 inches—yellowish red silty clay loam
32 to 46 inches—red silty clay that has yellowish brown mottles
46 to 65 inches—red silty clay loam that has strong brown and yellowish brown mottles

Inclusions

• Dickson soils on the lower landscapes
• Mountview soils on similar landscapes

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.
Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
• Grazing before plants are well established or grazing when the soil is wet may result in damage to the soil and plants and allow the invasion of undesirable species.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining plant cover is essential in controlling erosion.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• Septic tank filter fields should be designed so that they conform to the contour of the slope.
• The construction of dwellings needs to include engineering practices that overcome the slope limitation.
• Suitable base material should be provided before road surfaces are constructed.

CpB—Capshaw silt loam, 2 to 5 percent slopes

Landscape position: Stream terraces
Shape of areas: Irregular
Size of areas: 5 to 30 acres
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Moderately well drained

Permeability: Slow
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: 1.5 to 2.0 feet from December to April
Soil reaction: Strongly acid to moderately alkaline

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 17 inches—yellowish brown silty clay loam
17 to 26 inches—yellowish brown clay that has brownish gray mottles
26 to 43 inches—yellowish brown clay that has light yellowish brown and light gray mottles
43 to 58 inches—strong brown, light brownish gray, and light gray clay
58 inches—hard limestone bedrock

Inclusions

- Tupelo soils on similar landscapes
- Mimosa soils on footslopes

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.

Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
- Grazing before plants are well established at the beginning of the growing season, using excessive stocking rates, or grazing when the soil is wet may result in damage to the soil and plants and allow the invasion of undesirable species.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
- Because wetness and slow permeability are limitations affecting septic tank absorption fields, a specially designed septic system and drainage around the filter field are necessary.
- Because of the shrink-swell potential, wetness, and depth to bedrock, reinforcing foundations and walls and constructing buildings so that they fit the shape of the site are necessary.
- Providing suitable base material before constructing road surfaces helps to overcome the low soil strength.

DeD—Dellrose gravelly silt loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Pasture

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid

Typical Profile

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

Subsoil:
7 to 22 inches—dark brown gravelly silty clay loam
22 to 42 inches—strong brown gravelly silty clay loam that has reddish yellow and light yellowish brown mottles
42 to 60 inches—yellowish brown clay that has light gray, light yellowish brown, and strong brown mottles

Inclusions

- Mimosa soils in similar landscape positions
- Areas of soils that are redder in color
- Hawthorne soils in the higher positions on hillsides

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Areas used as cropland should only be cultivated on the contour.
• A rotation system in which the land remains in vegetative cover for several seasons following cultivation is needed.
• No-till farming and contour stripcropping help to reduce the hazard of water erosion and minimize runoff.
Capability subclass: 4e

Pasture and hay

Suitability: Suited
General management considerations:
• A permanent vegetative cover is needed to prevent a high rate of erosion.
• Overgrazing reduces plant cover, causes erosion, and encourages the growth of undesirable species.
• Deferred grazing, fertilization, and proper stocking rates help to keep the soil and forage in good condition.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining the plant cover is essential in controlling erosion.
• The slope restricts the use of wheeled and tracked equipment on skid trails.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
• The slope is a limitation affecting septic tank absorption fields, dwellings with and without basements, and local roads and streets.
• Septic systems may require special designs. A system should be designed so that it conforms to the shape of the site.
• The construction of dwellings needs to include engineering practices that overcome the slope limitation.
• Roads should be designed on the contour, and suitable subgrade material should be used.

DeE—Dellrose gravelly silt loam, 20 to 45 percent slopes

Setting

Landscape position: Steep hillsides
Shape of areas: Irregular
Size of areas: 5 to 400 acres
Major uses: Pasture

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid

Typical Profile

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

Subsoil:
5 to 22 inches—dark brown gravelly silty clay loam
22 to 38 inches—strong brown silty clay loam that has reddish yellow and light yellowish brown mottles
38 to 60 inches—yellowish brown clay that has light gray, light yellowish brown, and strong brown mottles

Inclusions

• Mimosa soils in similar landscape positions
• Areas of soils that are redder in color
• Hawthorne soils in the higher positions on hillsides

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope is a severe limitation affecting cropland.
Capability subclass: 6e

Pasture and hay

Suitability: Suited
General management considerations:
• A permanent vegetative cover is needed to prevent a high rate of erosion.
• Overgrazing reduces plant cover, causes erosion, and encourages the growth of undesirable species.
• Deferred grazing, fertilization, and proper stocking rates help to keep the soil and forage in good condition.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining the plant cover is essential in controlling erosion.
• The slope restricts the use of wheeled and tracked equipment on skid trails.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• The slope is a limitation affecting septic tank absorption fields, dwellings with and without basements, and local roads and streets. This limitation is difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

DfB2—Dewey silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Broad ridgetops
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Strongly acid or very strongly acid

Typical Profile

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

Subsoil:
7 to 14 inches—dark red silty clay
14 to 24 inches—dark red silty clay that has brownish yellow mottles
24 to 40 inches—red silty clay that has brownish yellow and yellow mottles
40 to 65 inches—red silty clay that has light yellowish brown and strong brown mottles

Inclusions

• Mountview soils in similar landscape positions
• Dickson soils in the adjacent lower landscape positions
• Sengtown soils in similar landscape positions
• Intermingled areas that are severely eroded

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• Additions of lime and fertilizer, controlled grazing, and adequate weed control are good practices of pasture management.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• Septic systems may require special designs.
• Suitable base material should be provided before road surfaces are constructed.

DkB—Dickson silt loam, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Shape of areas: Irregular
Size of areas: 5 to 600 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow in the fragipan

Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: Perched above the fragipan at a depth of about 1.7 feet to 2.5 feet from December to April
Soil reaction: Moderately acid to very strongly acid

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 12 inches—yellowish brown silt loam that has brown mottles
12 to 24 inches—yellowish brown silt loam
24 to 29 inches—yellowish brown silt loam that has light brownish gray and strong brown mottles
29 to 45 inches—yellowish brown silty clay loam fragipan that has pale brown, red, and strong brown mottles
45 to 57 inches—yellowish brown silty clay loam fragipan that has red, strong brown, and light brownish gray mottles
57 to 60 inches—strong brown silty clay loam that has red and light brownish gray mottles

Inclusions

- Mountview soils in the slightly higher landscape positions
- Guthrie soils in depressions
- Taft soils in the slightly lower landscape positions

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
- Yields are reduced in dry years because of the limited rooting depth and limited available water capacity.

Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
- Maintaining permanent plant cover helps to keep erosion to a minimum.
- Plant selection and good management are important for maintaining productivity.
- This soil is not suited to deep-rooted plants that are sensitive to wetness.
- Because of a perched water table, this soil is soggy and too soft for grazing for several days at a time during winter and early spring.
- Yields are moderate or low in dry years because of the limited available water capacity.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
- Septic systems require a special design that provides drainage around the filter field.
- Subsurface tile drains and landshaping help to keep excess water away from structures.
- Suitable base material should be provided before road surfaces are constructed.

DkC2—Dickson silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 80 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow in the fragipan
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: Perched above the fragipan at a depth of 1.7 feet to 2.5 feet from December to April
Soil reaction: Moderately acid to very strongly acid

Typical Profile

Surface layer:
0 to 2 inches—brown silt loam

Subsoil:
2 to 10 inches—yellowish brown silt loam that has brown mottles
10 to 28 inches—yellowish brown silt loam
28 to 45 inches—yellowish brown silty clay loam

fragipan that has pale brown, light brownish gray, and strong brown mottles
45 to 55 inches—yellowish brown silty clay loam fragipan that has red, strong brown, and light brownish gray mottles
55 to 60 inches—strong brown silty clay loam that has red and light brownish gray mottles

Inclusions

- Mountview soils on the steeper side slopes
- Taft soils in saddles and the lower flat areas

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.
- Yields are moderate or low in dry years because of the limited available water capacity.

Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
- Maintaining permanent plant cover helps to keep erosion to a minimum.
- Plant selection and good management are important for maintaining productivity.
- This soil is not suited to deep-rooted plants that are sensitive to wetness.
- Because of a perched water table, this soil is soggy and too soft for grazing for several days at a time during winter and early spring.
- Yields are moderate or low in dry years because of the limited available water capacity.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
- Septic systems require a special design that provides drainage around the filter field.
- Subsurface tile drains and landshaping help to keep excess water away from structures.
- Suitable base material should be provided before road surfaces are constructed.

Eg—Egam silt loam, frequently flooded

Setting

Landscape position: Flood plains
Shape of areas: Irregular
Size of areas: 5 to 125 acres
Slope range: 0 to 3 percent
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained or moderately well drained
Permeability: Moderately slow
Flood hazard: Frequent for very brief periods from December to March
Available water capacity: High
Depth to seasonal high water table: 3 to 4 feet from December to March
Soil reaction: Moderately alkaline to moderately acid

Typical Profile

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

Subsoil:
5 to 22 inches—very dark grayish brown clay
22 to 37 inches—dark grayish brown clay
37 to 49 inches—light olive brown silty clay loam that has light yellowish brown and olive brown mottles
49 to 60 inches—light brownish gray, yellowish brown, and light olive brown silty clay loam

Inclusions

- Lindell soils in similar landscape positions
- Arrington soils in areas adjacent to major drainageways

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Growing small grains and early season annuals is not recommended on this soil because of the hazard of flooding.
- Planting crops later in spring, when there is no danger of flooding and soil moisture conditions are more desirable, is recommended.

Capability subclass: 3w

Pasture and hay

Suitability: Well suited
General management considerations:
• Species that can tolerate short periods of wetness, such as tall fescue and white clover, should be selected for planting.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• Planting water-tolerant seedlings on raised beds increases survival rates.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• The hazard of flooding is a severe limitation affecting all urban uses.
• Other sites in the survey area should be considered for urban development.

En—Ennis gravelly silt loam, occasionally flooded

Setting

Landscape position: Narrow flood plains
Shape of areas: Irregular
Size of areas: 5 to 75 acres
Slope range: 0 to 2 percent
Major uses: Pasture

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Flood hazard: Occasional for very brief periods from December to March
Available water capacity: Moderate
Depth to seasonal high water table: 5 to 6 feet from December to March
Soil reaction: Moderately acid to very strongly acid

Typical Profile

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

Subsoil:
9 to 20 inches—yellowish brown gravelly loam
20 to 38 inches—brown gravelly silt loam
38 to 55 inches—yellowish brown gravelly silt loam that has yellowish brown and pale brown mottles
55 to 60 inches—yellowish brown gravelly silt loam that has yellowish brown and light brownish gray mottles

Inclusions

• Lindell soils in the slightly lower positions on flood plains
• Armour soils on low stream terraces
• Arrington soils intermingled in similar positions on flood plains
• Areas that have 7 to 10 inches of silt loam overwash with few rock fragments

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Crops can be damaged by occasional flooding during the growing season.
• The content of gravel in the surface layer may hinder tillage equipment.
Capability subclass: 2w

Pasture and hay

Suitability: Suited
General management considerations:
• Careful selection of drought-resistant grasses, proper weed control, and controlled grazing help to keep the pasture and soil in satisfactory condition.
• Grazing when the soil is wet causes soil compaction and minimizes tilth.

Woodland

Suitability: Suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• Flooding is a severe limitation affecting all urban uses. This limitation is difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

EtB—Etowah silt loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces
Shape of areas: Irregular
Size of areas: 5 to 60 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid

Typical Profile

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

Subsoil:
7 to 27 inches—strong brown clay loam
27 to 52 inches—yellowish red clay loam
52 to 65 inches—yellowish red clay loam

Inclusions

- Mimosa soils on the slightly higher footslopes
- Armour soils on the adjacent lower stream terraces
- Small areas of similar soils that contain large amounts of rock fragments

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.

Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
- High-quality forages, such as fescue and white clover, are suited to this soil.
- Alfalfa grows well and produces high yields in areas where liming, fertilization, and management are adequate.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
- Suitable base material should be provided before road surfaces are constructed.

EtC2—Etowah silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Stream terraces
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate or low
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
4 to 27 inches—strong brown clay loam
27 to 52 inches—yellowish red clay loam
52 to 65 inches—yellowish red clay loam

Inclusions

- Mimosa soils on the slightly higher footslopes
- Armour soils on the adjacent lower stream terraces
- Small areas of similar soils that contain large amounts of rock fragments

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Minimum tillage and crop residue management are

conservation measures that help to keep erosion at acceptable levels.
Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
• High-quality forages, such as fescue and white clover, are suited to this soil.
• Alfalfa grows well and produces high yields in areas where liming, fertilization, and management are adequate.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
• It is recommended that septic systems are specially designed so that they follow the contour of the surface.
• The construction of buildings needs to include engineering practices that overcome the slope limitation.
• Roads should be designed on the contour, and suitable subgrade material should be used.

EtD2—Etowah silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Stream terraces
Shape of areas: Long and narrow
Size of areas: 5 to 90 acres
Major uses: Pasture and woodland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
3 to 24 inches—strong brown clay loam
24 to 50 inches—yellowish red clay loam
50 to 60 inches—yellowish red clay loam

Inclusions

• Mimosa soils on adjacent footslopes
• Small areas of similar soils that contain large amounts of rock fragments

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Areas used as cropland should only be cultivated on the contour.
• A rotation system in which the land remains in vegetative cover for several seasons following cultivation is needed.
• No-till farming and contour stripcropping reduce the hazard of water erosion and minimize runoff.
Capability subclass: 4e

Pasture and hay

Suitability: Suited
General management considerations:
• High-quality forages, such as fescue and white clover, are suited to this soil.
• Pasture renovation may be needed when the better forage plants have decreased to levels less than those needed for optimum yields.
• Care should be taken to prevent overgrazing, especially on the steeper slopes, in order to reduce the hazard of erosion.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• Using low-pressure ground equipment damages the soil less and helps to maintain productivity.
• Maintaining plant cover is essential in controlling erosion.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited

General management considerations:
• The slope is the major limitation affecting urban uses. This limitation is difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

Gu—Guthrie silt loam, ponded

Setting

Landscape position: Concave depressions
Shape of areas: Irregular
Size of areas: 5 to 350 acres
Major uses: Woodland

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: High
Seasonal high water table: Ponded on the surface to a depth of 1 to 3 feet for long periods from December to May
Soil reaction: Extremely acid to strongly acid

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam that has yellowish brown mottles

Subsoil:
7 to 15 inches—gray silt loam that has brownish yellow mottles
15 to 24 inches—light brownish gray silt loam that has brownish yellow and yellowish brown mottles
24 to 35 inches—light brownish gray silt loam fragipan that has brownish yellow and light yellowish brown mottles
35 to 45 inches—light brownish gray silt loam fragipan that has red and strong brown mottles
45 to 60 inches—light brownish gray silty clay loam fragipan that has yellowish brown and brownish yellow mottles

Inclusions

• Dickson soils in the slightly higher areas
• Taft soils in similar landscape positions
• Areas of poorly drained soils that do not have a fragipan

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• Seasonal wetness and water ponded on the surface delay or prevent the planting and harvesting of most crops.
• In fringe areas, where ponding is less common, crops that have a short growing season and are adapted to seasonal wetness should be selected for planting.
Capability subclass: 5w

Pasture and hay

Suitability: Poorly suited
General management considerations:
• Periodic mowing and clipping helps to maintain uniform growth and prevent selective grazing.
• Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.
• Only plants that can tolerate seasonal inundation and wetness should be selected.

Woodland

Suitability: Suited to water-tolerant species
General management considerations:
• Performing field operations during dry periods minimizes damage to the soil.
• Planting water-tolerant seedlings on raised beds increases survival rates.
• Harvesting by area selection methods helps to prevent windthrow of the remaining trees.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• The ponding on the surface, seasonal wetness, and slow or very slow permeability are limitations affecting urban development. These limitations are difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

HaC2—Hampshire silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Hilltops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 130 acres
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 15 inches—dark yellowish brown silty clay loam
15 to 32 inches—strong brown silty clay
32 to 45 inches—strong brown silty clay
45 to 60 inches—interbedded sandstone, siltstone, and limestone

Inclusions

- Mimosa soils on footslopes
- Barfield and Ashwood soils in the lower landscape positions

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- Soil erosion is a concern when growing cultivated crops.
- Tillage systems that leave crop residue on the surface, farming on the contour, winter cover crops, grassed waterways, and crop rotations help to minimize runoff and control erosion.
- Conservation practices need to be intensified as the length and steepness of slopes increase.

Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
- Periodic mowing and clipping helps to maintain uniform growth and prevent selective grazing.
- Proper stocking rates, pasture rotation, and periodic mowing and clipping help to keep the pasture in good condition and protect the soil from erosion.

Woodland

Suitability: Well suited
General management considerations:
- Maintaining plant cover is essential in controlling erosion.
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
- A specially designed septic system may be needed to help overcome the permeability limitation. This system should be designed so that it conforms to the shape of the site.
- Reinforcing foundations and walls and constructing buildings so that they fit the shape of the site help to overcome the shrink-swell potential and slope limitation.
- Suitable base material should be provided before road surfaces are constructed.

HaD2—Hampshire silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 15 inches—dark yellowish brown silty clay loam
15 to 32 inches—strong brown silty clay
32 to 45 inches—strong brown silty clay
45 to 60 inches—interbedded sandstone, siltstone, and limestone

Inclusions

- Areas of rock outcrop
- Mimosa soils on the lower footslopes
- Barfield and Ashwood soils in the lower landscape positions

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• The slope and hazard of erosion are limitations affecting cropland.
• Areas used as cropland should only be cultivated on the contour.
• A rotation system in which the land remains in vegetative cover for several seasons following cultivation is needed.
• No-till farming and contour stripcropping reduce the hazard of water erosion and minimize runoff.
Capability subclass: 4e

Pasture and hay

Suitability: Suited
General management considerations:
• A permanent vegetative cover is needed to prevent a high rate of erosion.
• Hardy forage plants such as tall fescue mixed with white clover or sericea lespedeza are among the adapted forage plants.
• Care in preventing overgrazing is needed to maintain the life of the stand.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining plant cover is essential in controlling erosion.
• Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• The slow permeability, depth to bedrock, and slope are major concerns affecting urban uses. These limitations are difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

HwC—Hawthorne gravelly silt loam, 5 to 15 percent slopes

Setting

Landscape position: Narrow ridgetops and side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 350 acres
Major uses: Woodland

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Flood hazard: None
Available water capacity: Low
Depth to seasonal high water table: None
Soil reaction: Extremely acid to strongly acid

Typical Profile

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

Subsoil:
10 to 17 inches—yellowish brown gravelly silt loam
17 to 23 inches—dark yellowish brown very gravelly silty clay loam
23 to 34 inches—strong brown very gravelly silty clay loam

Substratum:
34 to 60 inches—alternating strata of highly fractured chert, siltstone, and silty clay loam

Inclusions

• Barfield and Ashwood soils in the lower positions on hillsides
• Areas of rock outcrop
• Dellrose soils on the lower concave hillsides and benches

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• The size and shape of the map unit, hazard of erosion, slope, low available water capacity, and shallow depth to bedrock are limitations affecting cropland.
Capability subclass: 4s

Pasture and hay

Suitability: Suited
General management considerations:
• Rotational grazing, controlling weeds, and applying fertilizer annually maintain the quality and quantity of forage.
• Because this soil is droughty, drought-tolerant species should be selected for planting.
• Avoiding overgrazing, especially on the steeper slopes, reduces the hazard of erosion.

Woodland

Suitability: Suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• Planting larger trees or planting more trees than normal helps to compensate for higher seedling mortality rates.
• Planting on north- or east-facing slopes, which retain more moisture during dry months, is recommended.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited or poorly suited
General management considerations:
• The depth to bedrock, seepage, and slope are the major limitations affecting most urban uses.
• Other sites in the survey area should be considered for urban development.

HwF—Hawthorne gravelly silt loam, 15 to 50 percent slopes

Setting

Landscape position: Hillsides
Shape of areas: Long and irregular
Size of areas: 5 to 500 acres
Major uses: Woodland

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Flood hazard: None
Available water capacity: Low
Depth to seasonal high water table: None
Soil reaction: Extremely acid to strongly acid

Typical Profile

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

Subsoil:
4 to 17 inches—yellowish brown gravelly silt loam
17 to 23 inches—dark yellowish brown very gravelly silty clay loam
23 to 34 inches—strong brown very gravelly silty clay loam

Substratum:
34 to 60 inches—alternating strata of highly fractured chert, siltstone, and silty clay loam

Inclusions

• Barfield and Ashwood soils in the lower positions on hillsides
• Areas of rock outcrop
• Dellrose soils on the lower concave hillsides and benches

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• Because of the size and shape of the map unit, hazard of erosion, slope, low available water capacity, and depth to bedrock, this unit is unsuited to cropland.
Capability subclass: 7s

Pasture and hay

Suitability: Poorly suited
General management considerations:
• Permanent vegetative cover is needed to prevent a high rate of erosion.
• Rotational grazing, controlling weeds, and applying fertilizer annually maintain the quality and quality of forage.
• Because this soil is droughty, drought-tolerant species should be selected for planting.
• Care in preventing overgrazing is needed to maintain the life of the stand.
• Where slopes are more than 30 percent, unless roads are built on the contour, farm equipment may not be operated safely.

Woodland

Suitability: Suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• The slope restricts the use of wheeled and tracked equipment on skid trails.
• Maintaining the plant cover is essential in controlling erosion.
• Planting on north- or east-facing slopes, which retain more moisture during dry months, is recommended.
• Planting larger trees or planting more trees than normal helps to compensate for the higher mortality rates.
• Because this soil is droughty, drought-tolerant species should be selected for planting.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited

General management considerations:
• The slope, depth to bedrock, and seepage are the major limitations affecting urban uses.
• Other sites in the survey area should be considered for urban development.

IrB—Ironcity gravelly silt loam, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Shape of areas: Irregular
Size of areas: 5 to 400 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
6 to 9 inches—brown gravelly silt loam
9 to 27 inches—yellowish brown gravelly silty clay loam that has light yellowish brown and yellowish red mottles
27 to 36 inches—yellowish brown gravelly silty clay loam that has light yellowish brown and yellowish red mottles
36 to 42 inches—red, white, and yellowish brown very gravelly silty clay
42 to 65 inches—strong brown and dark red very gravelly clay

Inclusions

• Dickson soils in the lower landscape positions
• Mountview soils in similar landscape positions
• Sengtown soils in similar landscape positions

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• The selection of drought-resistant plants, additions of lime and fertilizer, controlled grazing, and adequate weed control are good practices of pasture management.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• Suitable base material should be provided before road surfaces are constructed.

IrC—Ironcity gravelly silt loam, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops and side slopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Slightly acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
5 to 9 inches—brown gravelly silt loam
9 to 27 inches—yellowish brown gravelly silty clay

loam that has light yellowish brown and yellowish red mottles
27 to 36 inches—yellowish brown gravelly silty clay loam that has light yellowish brown and yellowish red mottles
36 to 42 inches—red, white, and yellowish brown very gravelly silty clay
42 to 65 inches—strong brown and dark red very gravelly clay

Inclusions

- Dickson soils in saddles
- Mountview soils in similar landscape positions
- Sengtown soils in similar landscape positions

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.

Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
- The selection of drought-resistant plants, additions of lime and fertilizer, controlled grazing, and adequate weed control are good practices of pasture management.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
- Septic systems require special designs that have field lines on the contour.
- The construction of dwellings needs to include engineering practices that overcome the slope limitation.
- Suitable base material should be provided before road surfaces are constructed.

Ln—Lindell silt loam, occasionally flooded

Setting

Landscape position: Flood plains
Shape of areas: Irregular
Size of areas: 5 to 250 acres
Slope range: 0 to 2 percent
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Flood hazard: Occasional for very brief periods from December to March
Available water capacity: High
Depth to seasonal high water table: 1.5 to 2.5 feet from December to April
Soil reaction: Moderately acid to neutral
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 13 inches—brown silt loam
13 to 20 inches—brown silty clay loam that has light brownish gray mottles
20 to 42 inches—yellowish brown silty clay loam that has dark yellowish brown and light gray mottles
42 to 60 inches—light gray and yellowish brown gravelly clay loam

Inclusions

- Armour soils on low stream terraces
- Egam soils in similar positions on flood plains

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- Most locally adapted crops grow well on this soil, and high yields can be obtained.
- Planting crops later in spring, when the hazard of flooding is less, is recommended (fig. 10).

Capability subclass: 2w

Pasture and hay

Suitability: Well suited

Figure 10.—Wetness in spring and fall may delay planting in areas of Lindell silt loam, occasionally flooded.

General management considerations:
• Plants that can tolerate short periods of wetness, such as tall fescue and white clover, grow well.
• Grazing when the soil is wet causes soil compaction and impedes growth.

Woodland

Suitability: Well suited
General management considerations:
• Planting seedlings on raised beds increases survival rates.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
• The flooding and seasonal wetness are the major limitations affecting urban uses.
• Other sites in the survey area should be considered for urban development.

MmC2—Mimosa silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Strongly sloping ridgetops and footslopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Pasture and woodland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

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

Subsoil:
6 to 18 inches—yellowish brown silty clay that has strong brown mottles
18 to 40 inches—yellowish brown clay that has light yellowish brown and yellowish red mottles
40 to 49 inches—yellowish brown clay that has grayish brown, yellowish red, and brownish yellow mottles
49 to 58 inches—light olive brown clay that has light gray and yellowish red mottles
58 inches—hard limestone bedrock

Inclusions

- Armour soils on low stream terraces
- Areas of rock outcrop
- Hampshire soils in similar landscape positions
- Barfield and Ashwood soils in similar landscape positions
- Areas that contain large amounts of gravel in the surface layer

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.

Capability subclass: 4e

Pasture and hay

Suitability: Well suited
General management considerations:
- Maintaining permanent plant cover helps to keep erosion to a minimum.
- All locally grown forage plants grow well on this soil if it is properly managed.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
- The depth to bedrock, slow or very slow permeability, and shrink-swell potential are the major limitations affecting most urban uses.

MmD2—Mimosa silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 250 acres
Major uses: Woodland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

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

Subsoil:
5 to 21 inches—yellowish brown silty clay that has strong brown mottles
21 to 38 inches—yellowish brown clay that has light yellowish brown and red mottles
38 to 47 inches—yellowish brown clay that has grayish brown, red, and brownish yellow mottles
47 to 58 inches—light gray clay that has grayish brown and yellowish red mottles
58 inches—hard limestone bedrock

Inclusions

- Areas of rock outcrop
- Hampshire soils in similar landscape positions
- Barfield and Ashwood soils in similar landscape positions
- Areas that contain large amounts of gravel in the surface layer

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- Because of the slope, rooting depth, and hazard of erosion, this soil is not suited to cropland.

Capability subclass: 6e

Pasture and hay

Suitability: Suited

General management considerations:
• A permanent vegetative cover is needed to prevent a high rate of erosion.
• Hardy forage plants such as tall fescue mixed with white clover or sericea lespedeza are among the adapted forage plants.
• Care in preventing overgrazing is needed to maintain the life of the stand.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining the plant cover is essential in controlling erosion.
• Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
• The slow or very slow permeability, depth to bedrock, shrink-swell potential, and slope are severe limitations affecting urban uses.
• Other sites in the survey area should be considered for urban development.

MmE2—Mimosa silt loam, 20 to 35 percent slopes, eroded

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 250 acres
Major uses: Woodland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

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

Subsoil:
3 to 18 inches—yellowish brown silty clay
18 to 35 inches—yellowish brown clay that has light yellowish brown and red mottles
35 to 46 inches—yellowish brown clay that has grayish brown, red, and brownish yellow mottles
46 to 55 inches—light gray clay that has grayish brown and yellowish red mottles
55 inches—hard limestone bedrock

Inclusions

• Areas of rock outcrop
• Barfield and Ashwood soils in similar landscape positions
• Areas that contain large amounts of gravel in the surface layer

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope, rooting depth, and hazard of erosion are limitations affecting cropland.
Capability subclass: 7e

Pasture and hay

Suitability: Poorly suited
General management considerations:
• A permanent vegetative cover is needed to prevent a high rate of erosion.
• Hardy forage plants such as tall fescue mixed with white clover or sericea lespedeza are among the adapted forage plants.
• Care in preventing overgrazing is needed to maintain the life of the stand.
• In areas where slopes are more than 30 percent, unless access roads are built on the contour, farm equipment may not be operated safely.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining the plant cover is essential in controlling erosion.
• The slope restricts the use of wheeled and tracked equipment on skid trails.
• Site preparation controls initial plant competition, and spraying may be necessary to control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited

General management considerations:
• The slow or very slow permeability, shrink-swell potential, slope, and depth to bedrock are the major limitations affecting urban uses. These limitations are difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

MnC—Mimosa-Rock outcrop complex, 5 to 20 percent slopes

Setting

Landscape position: Strongly sloping ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 260 acres
Major uses: Pasture

Composition

Mimosa soil: 50 percent
Rock outcrop: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Mimosa Soil

Drainage class: Well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate or low
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Mimosa soil

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

Subsoil:
6 to 18 inches—yellowish brown silty clay loam that has strong brown mottles
18 to 38 inches—yellowish brown clay that has light yellowish brown and red mottles
38 to 47 inches—yellowish brown clay that has grayish brown, yellowish red, and brownish yellow mottles
47 to 58 inches—light olive brown clay that has light gray and yellowish red mottles
58 inches—hard limestone bedrock

Rock outcrop

Rock outcrop consists of shelves of limestone bedrock that extend from a few inches to 1 to 2 feet above the surface of the soil.

Inclusions

• Barfield and Ashwood soils that are shallow to bedrock
• Areas of Mimosa soils that do not have rock outcrops

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope and areas of rock outcrop are the major limitations affecting cropland.
Capability subclass: 6s

Pasture and hay

Suitability: Suited
General management considerations:
• The selection of drought-resistant plants, additions of lime and fertilizer, controlled grazing, and adequate weed control are good practices of pasture management.
• A permanent vegetative cover is needed to prevent a high rate of erosion.

Woodland

Suitability: Well suited
General management considerations:
• Maintaining the plant cover is essential in controlling erosion.
• Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
• The slow or very slow permeability, shrink-swell potential, slope, and depth to bedrock are the major limitations affecting urban uses. These limitations are difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

MnE—Mimosa-Rock outcrop complex, 20 to 40 percent slopes

Setting

Landscape position: Steep hillsides
Shape of areas: Irregular

Size of areas: 5 to 200 acres
Major uses: Pasture and woodland

Composition

Mimosa soil: 50 percent
Rock outcrop: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Mimosa Soil

Drainage class: Well drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate or low
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Mimosa

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

Subsoil:
3 to 18 inches—yellowish brown silty clay loam that has strong brown mottles
18 to 35 inches—yellowish brown clay that has light yellowish brown and red mottles
35 to 46 inches—yellowish brown clay that has grayish brown, yellowish red, and brownish yellow mottles
46 to 55 inches—light olive brown clay that has light gray and yellowish red mottles
55 inches—hard limestone bedrock

Rock outcrop

Rock outcrop consists of shelves of limestone bedrock that extend from a few inches to 1 to 2 feet above the surface of the soil.

Inclusions

- Barfield and Ashwood soils in similar landscape positions
- Areas of Mimosa soils that do not have rock outcrops

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- Because of the slope and areas of rock outcrop, this soil is unsuited to cropland.

Capability subclass: 7s

Pasture and hay

Suitability: Poorly suited
General management considerations:
- A permanent vegetative cover is needed to prevent a high rate of erosion.
- Hardy forage plants such as tall fescue mixed with white clover or sericea lespedeza are among the adapted forage plants.
- Care in preventing overgrazing is needed to maintain the life of the stand.
- In areas where slopes are more than 30 percent, unless access roads are built on the contour, farm equipment may not be operated safely.

Woodland

Suitability: Suited
General management considerations:
- Maintaining the plant cover is essential in controlling erosion.
- The slope restricts the use of wheeled and tracked equipment on skid trails.
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
General management considerations:
- The slow or very slow permeability, shrink-swell potential, slope, and depth to bedrock are the major limitations affecting urban uses. These limitations are difficult and costly to overcome.
- Other sites in the survey area should be considered for urban development.

MoB—Mountview silt loam, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Shape of areas: Irregular
Size of areas: 5 to 500 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None

Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
8 to 20 inches—yellowish brown silt loam
20 to 31 inches—yellowish red silty clay loam that has red, yellowish brown, and light yellowish brown mottles
31 to 39 inches—red silty clay that has strong brown and yellowish red mottles
39 to 65 inches—red clay that has brown and yellowish red mottles

Inclusions

- Dickson soils in saddles
- Bewleyville soils in similar landscape positions

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.

Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
- Grazing before plants are well established or grazing when the soil is wet may result in damage to the soil and plants and allow the invasion of undesirable species.

Woodland

Suitability: Well suited
General management considerations:
- There are no management concerns affecting woodland.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
- Septic systems may require special designs.
- Reinforcing foundations and walls helps to overcome the shrink-swell potential.
- Suitable base material should be provided before road surfaces are constructed.

MoC—Mountview silt loam, 5 to 12 percent slopes

Setting

Landscape position: Side slopes and ridgetops
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
8 to 20 inches—yellowish brown silt loam
20 to 31 inches—yellowish red silty clay loam that has red, yellowish brown, and light yellowish brown mottles
31 to 39 inches—red silty clay that has strong brown and yellowish red mottles
39 to 65 inches—red clay that has brown and yellowish red mottles

Inclusions

- Dickson soils in saddles and on the slightly higher broad ridgetops
- Bewleyville soils in similar landscape positions

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.

Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
- Grazing before plants are well established or grazing when the soil is wet may result in damage to the soil and plants and allow the invasion of undesirable species.

Woodland

Suitability: Well suited
General management considerations:
• There are no management concerns affecting woodland.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• Septic systems may require special designs.
• Reinforcing foundations and walls and constructing buildings so that they fit the shape of the site help to overcome the shrink-swell potential and slope limitation.
• Suitable base material should be provided before road surfaces are constructed.

NeB—Nesbitt silt loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces
Shape of areas: Irregular
Size of areas: 5 to 75 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: 1.5 to 2.5 feet from December to April
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
6 to 17 inches—yellowish brown silt loam
17 to 29 inches—yellowish brown silty clay loam that has strong brown, light yellowish brown, and light gray mottles
29 to 48 inches—yellowish brown silty clay loam that has strong brown and light gray mottles
48 to 65 inches—yellowish brown silty clay that has light yellowish brown, strong brown, and light gray mottles

Inclusions

• Arrington and Egam soils on adjacent flood plains
• Armour soils in the slightly higher terraces positions

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• Proper weed control and controlled grazing help to keep the pasture and soil in satisfactory condition.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
• A specially designed septic system that provides subsurface drainage is necessary.
• Surface and subsurface drainage and the proper sealing of basement walls and foundations help to minimize wetness.
• Suitable base material should be provided before roads and streets are constructed.

Pq—Pits, quarry

This map unit consists of areas of active stone quarries. The soil material has been removed down to hard bedrock, which is being drilled and blasted for various local uses. The major use is for gravel in the transportation and construction industries. Vertical sidewalls consist of hard limestone bedrock. Generally, the soil overburden and undesirable rock material is deposited in an area adjacent to the

removal site. These spoil areas are used in reclaiming the area to vegetation. Several areas adjacent to active quarries have been planted to trees and permanent grasses.

No capability class is assigned to this map unit.

SeC—Sengtown gravelly silt loam, 5 to 12 percent slopes

Setting

Landscape position: Strongly sloping ridgetops and side slopes
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate
Depth to seasonal high water table: None
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

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

Subsoil:
9 to 18 inches—yellowish red gravelly silty clay loam
18 to 26 inches—yellowish red gravelly clay that has brownish yellow and red mottles
26 to 42 inches—red very gravelly clay that has yellowish brown, brownish yellow, and red mottles
42 to 65 inches—yellowish red very gravelly clay that has red and olive yellow mottles

Inclusions

- Dickson soils in saddles
- Mountview soils in the slightly higher positions on ridgetops and shoulder slopes
- Hawthorne soils on adjacent steep hillsides

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Minimum tillage and crop residue management are conservation measures that help to keep erosion at acceptable levels.

Capability subclass: 3e

Pasture and hay

Suitability: Well suited
General management considerations:
- Grazing before plants are well established at the beginning of the growing season or using excessive stocking rates reduces production and allows the invasion of undesirable species.
- Pasture management needs include the addition of lime and fertilizer, proper seeding rates and mixtures, and reduced stocking rates during periods of slow growth.

Woodland

Suitability: Well suited
General management considerations:
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
- Septic systems may require special designs. A system should be designed so that it conforms to the contour of the surface.
- Reinforcing foundations and walls and constructing buildings so that they fit the shape of the site help to overcome the shrink-swell potential and slope limitation.
- Designing roads on the contour and using suitable subgrade material help to overcome the soil limitations.

SeD—Sengtown gravelly silt loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 75 acres
Major uses: Pasture

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: Moderate

Depth to seasonal high water table: None
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

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

Subsoil:
9 to 18 inches—yellowish red gravelly silty clay loam
18 to 26 inches—yellowish red gravelly clay that has brownish yellow and red mottles
26 to 42 inches—red very gravelly clay that has yellowish brown, brownish yellow, and red mottles
42 to 65 inches—yellowish red very gravelly clay that has red and olive yellow mottles

Inclusions

- Hawthorne soils in the lower positions on hillsides

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- Areas used as cropland should only be cultivated on the contour.
- A rotation system in which the land remains in vegetative cover for several seasons following cultivation is needed.
- No-till farming and contour stripcropping reduce the hazard of water erosion and minimize runoff.

Capability subclass: 4e

Pasture and hay

Suitability: Suited
General management considerations:
- Grazing before plants are well established at the beginning of the growing season or using excessive stocking rates reduces production and allows the invasion of undesirable species.
- Pasture management needs include the addition of lime and fertilizer, proper seeding rates and mixtures, and reduced stocking rates during periods of slow growth.

Woodland

Suitability: Well suited
General management considerations:
- Maintaining the plant cover is essential in controlling erosion.
- The slope restricts the use of wheeled and tracked equipment on skid trails.
- Site preparation controls initial plant competition, and spraying can control subsequent growth.
- See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Suited
General management considerations:
- Septic systems should be designed so that they conform to the contour of the slope.
- The construction of dwellings needs to include engineering practices that overcome the slope limitation.
- Designing roads on the contour and using suitable subgrade material help to overcome the slope limitation.

ShB—Sequatchie loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Flood hazard: None
Available water capacity: High
Depth to seasonal high water table: None
Soil reaction: Moderately acid to very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

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

Subsoil:
7 to 20 inches—strong brown sandy clay loam
20 to 31 inches—strong brown sandy clay loam
31 to 45 inches—strong brown and dark brown sandy loam
45 to 60 inches—dark brown sandy loam

Inclusions

- Etowah soils on the adjacent higher stream terraces
- Arrington soils on adjacent flood plains
- Armour soils in similar positions on stream terraces

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Farming on the contour and crop residue management are conservation measures that can effectively maintain productivity.
Capability subclass: 2e

Pasture and hay

Suitability: Well suited
General management considerations:
• Maintaining permanent plant cover helps to keep erosion to a minimum.
• Alfalfa grows well and, if seeded with grass, helps to control erosion.

Woodland

Suitability: Well suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
General management considerations:
• This soil is well suited to urban uses.

Ta—Taft silt loam

Setting

Landscape position: Flats and depressions
Shape of areas: Irregular
Size of areas: 5 to 600 acres
Slope range: 0 to 2 percent
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Slow or very slow
Flood hazard: None
Available water capacity: Moderate
Seasonal high water table: Perched above the fragipan at a depth of about 1.0 to 1.5 feet from December to April
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown silt loam that has yellowish brown mottles

Subsoil:
8 to 14 inches—light olive brown silt loam that has yellowish brown mottles
14 to 26 inches—light yellowish brown silt loam that has light brownish gray mottles
26 to 34 inches—light brownish gray silt loam that has light yellowish brown and strong brown mottles
34 to 45 inches—yellowish brown silt loam fragipan that has light brownish gray and strong brown mottles
45 to 52 inches—yellowish brown silt loam fragipan that has light brownish gray and strong brown mottles
52 to 60 inches—red, brownish yellow, light brownish gray, and yellowish brown silty clay loam

Inclusions

• Dickson soils in the slightly higher landscape positions
• Guthrie soils in the lower positions in depressions and at the heads of drainageways

Use and Management

Cropland

Suitability: Suited
General management considerations:
• The seasonal high water table delays planting and harvesting in most years.
• Crops that have a short growing season and are adapted to seasonal wetness should be selected for planting.
• Planting crops later in spring, when wetness is reduced, improves germination and rooting depth.
Capability subclass: 3w

Pasture and hay

Suitability: Suited
General management considerations:
• Plant selection and good management are important for maintaining productivity.
• This soil is not suited to deep-rooted plants, such as alfalfa, that are sensitive to wetness.
• Because of a perched water table, this soil is soggy and too soft for grazing for several days at a time during winter and early spring.
• Yields are moderate or low in dry years because of the limited available water capacity.

Woodland

Suitability: Suited
General management considerations:
• Plant competition is the major concern affecting woodland management. The equipment limitations, seedling mortality, and windthrow hazard are other concerns.
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity.
• Planting vigorous seedlings on raised beds increases survival rates.
• Harvesting by area selection methods helps to prevent windthrow of the remaining trees.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
General management considerations:
• The wetness, slow or very slow permeability, and soil strength are limitations affecting most urban uses.

Tu—Tupelo silt loam, occasionally flooded

Setting

Landscape position: Low stream terraces
Shape of areas: Irregular
Size of areas: 5 to 90 acres
Slope range: 0 to 2 percent
Major uses: Pasture and hay

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Slow or very slow
Flood hazard: Occasional from December to April
Available water capacity: High
Depth to seasonal high water table: 1.0 to 1.5 feet from December to April
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 16 inches—brownish yellow silty clay loam that has light brownish gray mottles
16 to 24 inches—brownish yellow clay that has light gray, light olive brown, and yellowish brown mottles
24 to 32 inches—light olive brown clay that has light gray, yellowish brown, and brownish yellow mottles
32 to 51 inches—light brownish gray clay that has yellowish brown mottles
51 to 60 inches—gray clay that has yellowish brown and brownish gray mottles

Inclusions

• Capshaw soils in the slightly higher positions on stream terraces
• Egam soils on flood plains
• Lindell soils on flood plains
• Agee soils in the lower positions on stream terraces

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Flooding and the seasonal high water table delay planting and harvesting in most years.
• Subsurface tile drains and surface ditches are needed to help remove excess water.
• This soil is not suited to deep-rooted plants that are sensitive to wetness.
• Planting short-season annuals later in spring is recommended.
Capability subclass: 3w

Pasture and hay

Suitability: Suited (fig. 11)
General management considerations:
• Species that can tolerate short periods of inundation and seasonal wetness, such as tall fescue and white clover, should be selected for planting.
• Grazing when the soil is wet causes soil compaction, reduces plant cover, and encourages the growth of undesirable species.

Woodland

Suitability: Suited
General management considerations:
• Site preparation controls initial plant competition, and spraying can control subsequent growth.
• Performing field operations during dry periods minimizes damage to the soil.
• Planting hardy seedlings on raised beds increases survival rates.
• See table 8 for specific information concerning potential productivity and suggested trees to plant.

Figure 11.—Tupelo soils along stream terraces are suited to pasture and hay.

Urban development

Suitability: Unsuited
General management considerations:
• The wetness, flooding, shrink-swell potential, and slow permeability are the major limitations affecting urban uses. These limitations are difficult and costly to overcome.
• Other sites in the survey area should be considered for urban development.

Ur—Urban land

This map unit is in the city of Fayetteville and its surrounding areas. Streets, parking lots, sidewalks, buildings, and other structures cover 85 percent or more of the soil surface. There are some small open areas not covered by concrete, asphalt, or buildings. The soils in these areas, however, have been altered by urbanization. Many of these soils consist of fill material from an unknown source. An onsite investigation is needed to determine any specific interpretations for these sites.

No capability class is assigned to this map unit.

W—Water

This map unit consists of areas inundated with water all year and generally includes rivers, lakes, and ponds.

No capability class is assigned to this map unit.

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 woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

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

Crops and Pasture

Michael D. Hubbs, Agronomist, Natural Resources Conservation Service, assisted in preparing this section.

According to the 1992 Census, Statistics in Agriculture, approximately 160,000 acres in Lincoln County are used for pasture and hay. About 47,000 acres of this land has at least one cutting of hay harvested. Tennessee Agriculture 1994, Tennessee Agriculture Statistics, reports the acreage of several crops harvested in 1993. About 13,500 acres was harvested for corn for grain, 12,600 for soybeans, 5,000 acres for wheat, 400 acres for grain sorghum, 625 acres for burley tobacco, 3,600 acres for cotton, and 900 acres for alfalfa hay. There are 2,856 acres in the Conservation Reserve Program in Lincoln County.

In 1989 through 1993, the acreage of soybeans decreased by 40 percent. The acreage of wheat decreased by 28 percent during the same period. The acreage of corn, cotton, and burley tobacco, however, gradually increased since 1989.

Tall fescue is the dominant grass used for hay and pasture. Other grasses used include orchardgrass and bermudagrass. Improved pastures contain white clover, red clover, or other legumes. Alfalfa or summer annual grasses are used for hay production in a few areas. Most pasture and hay is used in beef cattle operations.

The allocation of land for use as cropland, pasture, or woodland is determined largely by land capability and economic factors. Some land can be used only as woodland because of the slope and areas of rock outcrop. Other land can be used for pasture or woodland but is too steep for cropland. Land suitable for cropland is typically suitable for pasture and woodland. Economic factors and personal values influence an owner's decisions about how to use land that is physically suitable for different purposes. In general, most land suited to crops is used primarily for crops or is rotated with pasture and hay.

Other soil factors that limit plant growth include the amount and size of rock fragments, a high clay content, wetness, and flooding. Rock fragments reduce the available water capacity and interfere with tillage. A high clay content limits the available water capacity and affects tilth if the clay is in the plow layer. Wetness delays planting in spring, limits plant growth, and can delay harvest. Crops such as tobacco and alfalfa are sensitive to wetness. Depending on the degree of wetness, these crops can have severely

reduced yields or not grow at all. Flooding can damage crops or result in scour erosion. Most flooding in Lincoln County occurs in winter or early spring, but some areas are subject to flooding at almost any time during extreme rainfall.

Crop production is concentrated on the Highland Rim and on flood plains and terraces of the Elk River and other smaller streams. Soils in these areas are generally very deep and well drained, do not have rock outcrops or excessive amounts of rock fragments, and have a high available water capacity. They are well suited to most crops grown in the survey area and can produce high yields under good management. Flooding is a hazard when crops are grown on the flood plains. The probability of flooding depends on local topography, time of year, and duration and extent of rainfall. The higher, more sloping terraces do not flood but are subject to erosion on the steeper slopes.

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.

Cropland Management

Soil erosion is a significant management problem on much of the land in Lincoln County because of the slope. Other soil characteristics, such as depth to bedrock, areas of rock outcrop, and rock fragments in the soil, are also serious problems in large areas of land. There are very few management practices that can be used to overcome these limitations, but management practices can be applied to minimize soil erosion.

Erosion reduces soil productivity, results in the siltation of stream channels, increases the flooding of lowlands, and lowers the water quality in streams and lakes. Sediment from eroded fields carries pesticides and plant nutrients into streams.

Soil erosion reduces productivity in several ways. Tilth and water infiltration are reduced. As a result, seedling emergence and growth are reduced and cultivation is more difficult. Reduced water infiltration means that less water enters the soil and is stored for plant use.

Available water capacity is reduced as the loamy surface layers are removed and the subsoil, which has more clay, is exposed. This condition is especially severe for soils in which water storage is already reduced because they have a limited depth to bedrock.

As topsoil is lost through erosion, plant nutrients and organic matter are also lost. Replacing these nutrients is an added expense.

Conservation practices are effective in reducing erosion by reducing raindrop impact and slowing surface runoff. Vegetative-type practices include no-till farming, reduced tillage, crop residue management, cover crops, stripcropping, and sod-based rotation. These practices provide ground cover, which reduces raindrop impact and slows runoff. Mechanical-type practices include terraces, contour farming, and diversions. These practices reduce or slow runoff. Mechanical practices, such as terraces and diversions, that require the transport of soil for construction, are best suited to deep soils that have uniform, smooth slopes of 12 percent or less. Information on the use of conservation practices is available from the local office of the Natural Resources Conservation Service.

Poor tilth is a management problem in areas where erosion has removed most of the original surface soil and exposed soil that is low in organic matter content and high in clay content. Poor tilth makes tillage operations difficult, impedes seedling emergence and growth, and reduces water infiltration. Soil tilth can be maintained or improved by adding organic matter to the soil and by reducing the number of tillage operations. Organic material can be added by growing sod crops, managing crop residue, adding manure, or turning under green manure crops. Fresh organic material keeps the organisms in the soil active and improves soil structure.

Soil Fertility

Most soils in Lincoln County cannot produce sustained yields that are economically profitable without the addition of plant nutrients. Nitrogen, phosphorus, and potassium are the primary nutrients needed for plant growth and are the elements most commonly added in commercial and organic fertilizers. The plant nutrients are taken up by crops and removed when the crops are harvested. These nutrients must be replaced to maintain productivity.

The content of phosphorus and potassium depends on the natural content in the soil, past removal by crops, and additions in fertilizer. Some of the soils in the outer part of the Nashville Basin are high in phosphorus because the parent rock contained

phosphate nodules. Phosphorus and potassium can be built up or “stored” in the soil. It may be feasible to add more of these nutrients than is needed by the current crop when the cost is lower than normal, but it is generally not practical to allow them to build up to high levels. The only way to accurately determine if the soil needs additions of these elements and how much it needs is by soil tests.

Nitrogen is mobile in the soil and can be removed by leaching as well as by crop growth. Although organic matter can supply nitrogen, most soils in Lincoln County generally do not have a high enough organic matter content to supply adequate nitrogen for the production of sustained yields at economically profitable levels in non-legume crops. No soil test is available for predicting nitrogen requirements. Recommendations for nitrogen applications which come with soil test results for phosphorus and potassium are based on averages from research in similar soils and the needs of the crop to be grown. Legumes such as soybeans and clover can fix and use nitrogen from air and do not require nitrogen fertilizer.

Except for the high phosphate soils in the outer part of the Nashville Basin, soils in Lincoln County are acid throughout the major part of the rooting zone. The surface layer is normally less acid where it has been limed recently. Acidity affects the availability of nutrients and the activity of beneficial micro-organisms. Efficient uptake and use of nutrients requires a soil reaction (pH) that is slightly acid or neutral for most plants. The optimum pH range depends upon the particular crop. Soil tests can determine pH and give liming recommendations. Additions of lime provide calcium, and additions of dolomitic limestone provide calcium and magnesium.

Pasture Management

Pasture and hay currently occupy a large part of the land area in Lincoln County. They consist of cool-season and warm-season grasses and legumes. The main grasses are tall fescue, bermudagrass, and orchardgrass. The most common legumes are white clover, red clover, alfalfa, annual lespedeza, and sericea lespedeza. Legume forages have a higher protein content than grasses. Legumes can also supply available nitrogen and thus reduce the need for nitrogen fertilizer. Including legumes into perennial grass stands when they make up less than 30 percent optimizes the quantity and quality of pasture growth.

Major pasture management practices include fertilization, liming, weed control, rotational grazing, and occasional renovation. As with crops, the desired level of forage production can be obtained by applying fertilizer and lime as indicated by the results of soil tests. Weeds can be controlled by mowing before the weeds reach maturity and produce seed. Weed control is easier on well managed pastures than it is on overgrazed, poorly managed pastures. Proper stocking rates and rotation of livestock help to maintain good stands and a dense cover of grass and legumes.

Some annual grasses are used for supplemental grazing or for hay. Sudan-sorgham hybrids, pearl millet, and sudangrass make good summer pasture. Small grain and annual rye grass provide good grazing in late fall and early spring.

Hay is harvested from surplus growth of grass-legume pastures or from fields used only for hay production and not from those used for pasture. Alfalfa, red clover, sericea lespedeza, annual lespedeza, and small grains are also used for hay crops. Management for hay is generally the same as for pasture, except that fertilizer recommendations are normally higher in order to produce a larger volume of forage. Hay crops should be cut at the stage of growth that provides the optimum quality and quantity of feed and does not damage the grass-legume stand. Cutting perennial hay crops too close causes premature loss of the stand.

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 tables 5 and 6. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the tables.

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 tables 5 and 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or 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 woodland 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 numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

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

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

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

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

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

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

The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and in tables 5 and 6.

Prime Farmland

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

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

6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 82,204 acres in the survey area, or nearly 23 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the southern part, mainly in general soil map unit 2, which is described under the heading “General Soil Map Units.” Prime farmland is used for row crops, pasture, and hay.

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

The map units in the survey area that are considered prime farmland are listed 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.”

Woodland Management and Productivity

Virgin hardwood and cedar forest once covered all of the survey area. The trees have been cleared on most of the land that is suitable for cultivation or pasture and even on some land that is not suitable. Most of the areas that are currently in woodland are too steep, too wet, or too shallow to bedrock to be farmed in a practical manner. In most woodland areas, timber has been harvested at least once. In many areas, it has been harvested several times. Some woodland areas are abandoned cropland or pasture. In most woodland areas, the soils are well suited to the production of trees. Trees grow fast and produce high yields of good quality timber if the woodland is properly managed.

Woodland now makes up about 136,700 acres, or 37 percent, of Lincoln County. The majority of this woodland, 60 percent, occurs as tracts less than 100 acres in size. The remaining tracts of woodland are between 100 and 500 acres in size. All of the woodland areas are privately owned, and the majority is owned by farmers. The woodland is predominantly immature. Only 22 percent can be harvested as sawtimber. Currently, sawtimber growth greatly exceeds sawtimber removal, with a resulting annual net gain of 12 million board feet.

The largest areas of woodland are in general soil map units 1 and 2. The most common trees in these map units are oaks, hickories, eastern redcedar, hackberry, elm, and Osage-orange. In general soil map unit 2, relatively pure stands of eastern redcedar are typically on soils that are shallow over limestone or are intermingled with outcrops of limestone. The trees growing in these areas occur in a wide range of forest successional stages, from young to mature, depending on the particular time of pasture or cropland abandonment. In woodland consisting of mature stands, understory trees are typically sassafras, eastern redbud, flowering dogwood, and American hornbeam.

In general soil map unit 4, small tracts of woodland occur along drainageways on the more poorly drained soils. The most common trees in these areas are oaks, hickories, yellow-poplar, green ash, red maple, and sweetgum. The forests in this general map unit tend to be of a more mature forest successional stage due to the difficulty in cultivating the wet soils.

Most of the existing woodland could be improved if mature or deformed trees and undesirable species were removed from the stands. Restocking and controlling competing vegetation, such as vines, are needed in places. Fire protection, controlled grazing, and control of disease and insects are also needed to improve stands. Tree planting is needed in some steep and wet areas where farming has proved impractical. The local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Tennessee Division of Forestry can help to determine specific management needs.

Table 8 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils suitable for wood crops are listed. In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed also are subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe*

indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

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 woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species.

Suggested trees to plant are those that are suitable for commercial wood production.

Recreation

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings 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.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

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 best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

By Michael E. Zeman, State Biologist, Natural Resources Conservation Service.

Wildlife is an important natural resource of the county, providing a source of revenue through sport hunting. Popular game species include bobwhite quail, cottontail rabbit, whitetail deer, mourning dove, eastern wild turkey, gray squirrel, and fox squirrel. The good diversity of wildlife in the county provides recreational opportunities, such as photography and bird watching, and improves the overall quality of life.

Lincoln County is approximately 50 percent woodland and 50 percent openland. The openland is principally grassland, but the southern half of the county has extensive cropland. Deer, turkey, and bobwhite quail occur in good numbers throughout the county because of edge habitat or the patchwork of habitat types.

Most of the soils in Lincoln County are moderately limited as sites for ponds because of seepage, gravel, or excessive slopes. Nevertheless, a good clay content in most of the county's soils accounts for the hundreds of ponds and small lakes that have been built for livestock water and recreational fishing.

Lincoln County has a total of 389 miles of warm-water streams, which provide approximately 1,991 acres of aquatic habitat. The largest stream, the Elk River, averages more than 100 feet in width and extends east to west through the central part of the county. Common fish species occurring in streams in the county include largemouth bass, smallmouth bass, spotted bass, rock bass, bluegill sunfish, longear sunfish, green sunfish, channel catfish, flathead catfish, brown bullhead, yellow bullhead, and several species of minnows. The water quality of streams is relatively good throughout the county and moderately productive for fish and aquatic wildlife. The Tennessee Department of Health and Environment's 305(b) report on the status of water quality in Tennessee (dated 1990) indicates that all of the streams in the county fully support fish and aquatic life, with the exception of Norris Creek. Norris Creek was assessed as partially supporting fish and aquatic life because of negative impacts from agricultural activities and animal wastes.

There are many wetlands in Lincoln County,

excluding artificial wetlands such as upland farm ponds and small lakes. These wetlands are primarily wooded bottomland areas on Guthrie soils that have high water tables and are subject to ponding during the growing season. These bottomland hardwood sites provide some of the most productive wildlife habitat in the county. Many upland and wetland wildlife species depend on wooded wetlands to meet daily needs. The high productivity of these soils generally provides the best mast and forage production. Bottomland hardwoods improve the water quality of streams by removing excess nutrients and trapping sediment from upland runoff, by lowering water temperatures through shading, and by providing leaf litter, which serves as food for aquatic insects, the primary food source of small fish.

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 10, 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, and oats.

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 fescue, orchardgrass, annual lespedeza, 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 bluestem, goldenrod, common ragweed, beggarweed, pokeberry, and croton.

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, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are bush-honeysuckle, autumn-olive, bi-color lespedeza, and crabapple.

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

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

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.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas.

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 estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The

ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrinking and swelling can cause the movement of footings. A high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

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 stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

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. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that

makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, and large stones.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the 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.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, and soil reaction affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

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.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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 soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high 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 engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They

are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

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.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

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

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

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

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

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

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high

content of stones or boulders. 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 and permeability of the aquifer. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone and soil reaction.

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

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

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

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

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

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

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

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

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

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 grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Properties

Table 16 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.

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.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 16, 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 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 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 downward movement of water 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 16, 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 table 16 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

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

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

Chemical Properties

Table 17 shows estimates of soil reaction, which affects 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.

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 18 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.

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

Water table refers to a saturated zone in the soil. Table 18 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 18 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional*

that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

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

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

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 19 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 *(6, 7)*. 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 20 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 *Ultic* identifies the subgroup that typifies the great group. An example is Ultic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, active, thermic Ultic 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” *(9)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(7)* and in “Keys to Soil Taxonomy” *(6)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Agee Series

The Agee series consists of very deep, poorly drained soils. These soils formed in clayey alluvium or partially in clayey alluvium and the underlying residuum of limestone. They are in broad, flat areas in limestone valleys and on low stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Agee silty clay loam, rarely

flooded; from Fayetteville, 15 miles west on Tennessee Highway 273, about 2.25 miles south on Cheatham Road, 75 feet north in a field; lat. 35 degrees 05 minutes 05 seconds N. and long. 86 degrees 48 minutes 05 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay loam; moderate medium granular structure; friable; common fine and medium roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; slightly acid; clear smooth boundary.

Bg1—10 to 14 inches; dark gray (5Y 4/1) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; slightly acid; gradual smooth boundary.

Bg2—14 to 26 inches; dark gray (5Y 4/1) clay; common medium distinct olive gray (5Y 5/2) mottles; moderate medium subangular blocky structure; firm; common fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; common medium distinct olive (5Y 5/3) iron accumulations; slightly acid; gradual smooth boundary.

Bg3—26 to 42 inches; gray (5Y 5/1) clay; weak medium subangular blocky structure; firm; common fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; neutral; gradual smooth boundary.

Cg—42 to 60 inches; 25 percent gray (5Y 5/1), 25 percent light olive gray (5Y 6/2), 25 percent olive (5Y 5/3), and 25 percent light olive brown (2.5Y 5/6) clay; massive; very firm; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 5 percent subrounded fragments; neutral.

Depth to bedrock is more than 60 inches. The soil normally does not have coarse fragments, but in some pedons it has as much as 5 percent gravel. Reaction ranges from moderately acid to slightly alkaline throughout the profile.

The Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. Texture is silty clay loam.

The Bg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 or 5, and chroma of 1 or 2. It has few or common redoximorphic features in shades of gray, black, olive, and brown. Texture is silty clay or clay.

The Cg horizon has the same colors as the Bg horizon or has a mottled pattern without a dominant matrix color. Texture is clay.

Armour Series

The Armour series consists of very deep, well drained soils. These soils formed in old alluvium or valley fill or in alluvium and the underlying clayey residuum of limestone. They are on stream terraces, footslopes, and valley floors. Slopes range from 2 to 5 percent.

Typical pedon of Armour silt loam, 2 to 5 percent slopes; from Fayetteville, 2.0 miles west on U.S. Highway 64, about 3.0 miles northwest on Old Boonshill Road, 1.5 miles north on Marsh Mill Road, 1,000 feet due east in a field; lat. 35 degrees 11 minutes 54 seconds N. and long. 86 degrees 37 minutes 49 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 3/4) silt loam; moderate medium granular structure; very friable; common fine and medium roots; common pores and voids; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; moderately acid; clear smooth boundary.

BA—9 to 16 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; moderately acid; clear smooth boundary.

Bt1—16 to 28 inches; strong brown (7.5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—28 to 45 inches; brown (7.5YR 4/4) silty clay loam; common medium distinct strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/3) clay films on faces of peds; 10 percent rounded and subrounded gravel; moderately acid; clear smooth boundary.

Bt3—45 to 60 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many prominent brown (7.5YR 4/3) clay films on faces of peds; 10 percent rounded and subrounded gravel; strongly acid.

Depth to bedrock is more than 60 inches. The content of coarse fragments ranges from 0 to 10 percent in the upper 40 inches of the profile and from 0 to 35 percent below a depth of 40 inches. Reaction ranges from slightly acid to strongly acid.

The A horizon has hue of 10YR and value and chroma of 3 or 4. Texture is silt loam.

Thin transitional horizons occur in some pedons. They are similar in color and texture to the adjacent horizons.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. It has none to common mottles in shades of brown and yellow. Texture is silt loam or silty clay loam.

The BC horizon, if it occurs, has colors similar to the Bt horizon. Texture is silty clay loam or clay loam.

Arrington Series

The Arrington series consists of very deep, well drained soils. These soils formed in silty alluvium on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Arrington silt loam, frequently flooded; from Fayetteville, 4.8 miles east on U.S. Highway 64, about 300 feet due south of the road; lat. 86 degrees 29 minutes 21 seconds N. and long. 35 degrees 08 minutes 23 seconds W.

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam; moderate medium granular structure; very friable; common fine and medium roots; slightly acid; abrupt wavy boundary.

A—10 to 24 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; slightly acid; gradual smooth boundary.

Bw1—24 to 34 inches; very dark grayish brown (7.5YR 3/2) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; slightly acid; gradual smooth boundary.

Bw2—34 to 51 inches; very dark grayish brown (7.5YR 3/2) silt loam; common medium distinct dark brown (7.5YR 3/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; moderately acid; gradual smooth boundary.

C—51 to 60 inches; 34 percent yellowish brown (10YR 5/4), 33 percent brown (10YR 4/3), and 33 percent strong brown (7.5YR 5/6) silty clay loam; weak coarse and medium subangular blocky structure; firm; slightly acid.

Depth to bedrock is more than 60 inches. The mollic epipedon ranges from 24 to 51 inches in thickness. The content of rock fragments ranges from 0 to 5 percent in the A and B horizons and from 0 to 15 percent in the C horizon. Reaction ranges from slightly acid to slightly alkaline throughout the profile.

The Ap and A horizons have hue of 10YR, value of 3, and chroma of 2 or 3. Texture is silt loam.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4. It has few or common mottles in shades of brown. Texture is silt loam or silty clay loam.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 4 or 6. In some pedons, it has an evenly mottled pattern in these colors without a dominant matrix color. It has few or common mottles in shades of brown. Texture is silt loam, silty clay loam, or clay loam.

Ashwood Series

The Ashwood series consists of moderately deep, well drained soils. These soils formed in residuum weathered from phosphatic limestone. They are on upland hillsides of the Nashville Basin. Slopes range from 5 to 40 percent.

Typical pedon of Ashwood silty clay loam in an area of Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes; from Fayetteville, 7.0 miles west on U.S. Highway 64, about 0.75 mile east of Barnes Hollow Road, 100 feet due north of the road; lat. 35 degrees 12 minutes 11 seconds N. and long. 86 degrees 43 minutes 13 seconds W.

A—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium granular structure; friable; common fine and medium roots; slightly acid; clear smooth boundary.

Bt1—8 to 18 inches; yellowish brown (10YR 5/4) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; common distinct brown (10YR 5/3) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; slightly acid; clear wavy boundary.

Bt2—18 to 22 inches; yellowish brown (10YR 5/4) clay; few fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; slightly acid; clear wavy boundary.

Bt3—22 to 24 inches; yellowish brown (10YR 5/6) clay; few medium distinct weak red (2.5YR 4/2) mottles; weak medium subangular blocky structure; firm; few fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; neutral; abrupt smooth boundary.

R—24 inches; hard limestone bedrock.

Depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges from 0 to 15 percent

in all horizons. Reaction ranges from moderately acid to slightly alkaline.

The A horizon has hue of 10YR, value of 3, and chroma of 2 or 3. Texture is silt loam, silty clay loam, or silty clay.

The Bt horizon that is below the mollic epipedon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. It has few or common mottles in shades of gray, olive, and brown. Texture is clay or silty clay.

Barfield Series

The Barfield series consists of shallow, well drained to excessively drained soils. These soils formed in residuum of limestone on upland hillsides of the Nashville Basin. Slopes range from 5 to 40 percent.

Typical pedon of Barfield silty clay in an area of Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes; from Fayetteville, 7.0 miles west on U.S. Highway 64, about 0.75 mile east of Barnes Hollow Road, 300 feet north of the road; lat. 35 degrees 12 minutes 13 seconds N. and long. 86 degrees 43 minutes 11 seconds W.

A—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium granular structure parting to weak medium subangular blocky; firm; common fine and medium roots; 10 percent channers and 1 percent flagstones of limestone; slightly acid; clear smooth boundary.

Bw—7 to 9 inches; dark brown (10YR 3/3) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; 10 percent channers and 1 percent flagstones of limestone; slightly acid; clear smooth boundary.

BC—9 to 13 inches; light olive brown (2.5Y 5/4) channery clay; few fine distinct grayish brown (2.5Y 5/2) mottles; weak medium subangular blocky structure; firm; common fine and medium roots; 12 percent channers and 5 percent flagstones; neutral; clear smooth boundary.

C—13 to 16 inches; light olive brown (2.5Y 5/4) channery clay; common medium prominent strong brown (7.5YR 5/8) and common medium distinct grayish brown (2.5Y 5/2) mottles; massive; very firm; few fine roots; 20 percent channers and 5 percent flagstones of limestone; neutral; abrupt smooth boundary.

R—16 inches; hard limestone bedrock.

Depth to bedrock ranges from 8 to 20 inches. The content of channers and flagstones ranges from 0 to 15 percent in the A horizon and from 3 to 35 percent in the B and C horizons. Reaction ranges from slightly acid to moderately alkaline throughout the profile.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 2. Texture of the fine-earth fraction is silty clay.

The upper part of the Bw horizon has hue of 10YR and value and chroma of 3. The lower part of the horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. Texture of the fine-earth fraction is silty clay or clay.

The BC and C horizons have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4. They have few or common mottles in shades of brown, olive, gray, and yellow. Texture of the fine-earth fraction is silty clay or clay.

Bewleyville Series

The Bewleyville series consists of very deep, well drained soils. These soils formed in a thin mantle of loess over residuum from cherty limestone. They are on broad ridgetops and side slopes of the Highland Rim. Slopes range from 2 to 12 percent.

Typical pedon of Bewleyville silt loam, 2 to 5 percent slopes; from Fayetteville, 2 miles south on U.S. Highway 231, about 20 miles southwest on Tennessee Highway 110, about 0.25 mile north on Gatlin Road, 1,330 feet due west of the road; lat. 35 degrees 01 minute 05 seconds N. and long. 86 degrees 48 minutes 51 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

BA—8 to 15 inches; strong brown (7.5YR 4/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; clear smooth boundary.

Bt1—15 to 30 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; very strongly acid; gradual smooth boundary.

2Bt2—30 to 43 inches; red (2.5YR 4/6) silty clay loam; few fine prominent yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; common fine roots; common distinct reddish brown (2.5YR 4/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese

concretions; very strongly acid; clear smooth boundary.

2Bt3—43 to 65 inches; red (2.5YR 4/6) silty clay loam; common medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct reddish brown (2.5YR 4/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; very strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 5 percent in the A and Bt horizons and from 0 to 25 percent in the 2Bt horizon. Reaction ranges from slightly acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. In eroded areas, it may have hue of 5YR and chroma of 6. Texture is silt loam.

Thin transitional horizons occur in some pedons. They are similar in color and texture to the adjacent horizons.

The Bt horizon has hue of 7.5YR or 5YR, value of 4, and chroma of 4 or 6. It has few or common mottles in shades of brown, red, and yellow. Texture is silt loam or silty clay loam.

The 2Bt horizon has hue of 2.5YR or 5YR, value of 3 to 6, and chroma of 4 to 8. It has mottles in shades of yellow, brown, red, and gray. Texture is clay, clay loam, or silty clay loam.

Capshaw Series

The Capshaw series consists of deep, moderately well drained soils. These soils formed in a thin layer of loess or old alluvium and the underlying clayey residuum. They are on stream terraces. Slopes range from 2 to 5 percent.

Typical pedon of Capshaw silt loam, 2 to 5 percent slopes; from Fayetteville, 4.5 miles west on U.S. Highway 64, about 600 feet north on Pigg Lane, 75 feet due west of the road; lat. 35 degrees 10 minutes 55 seconds N. and long. 86 degrees 38 minutes 09 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many fine and medium roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; moderately acid; gradual smooth boundary.

Bt1—9 to 17 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; many fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; moderately acid; clear smooth boundary.

Bt2—17 to 26 inches; yellowish brown (10YR 5/4) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct brown (10YR 5/3) clay films on faces of peds; many fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; common fine distinct light brownish gray (10YR 6/2) iron depletions; moderately acid; clear smooth boundary.

Bt3—26 to 43 inches; yellowish brown (10YR 5/4) clay; weak medium subangular blocky structure; very firm; few fine roots; few distinct brown (10YR 5/3) clay films; few fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; common medium distinct light yellowish brown (10YR 6/4) and light gray (10YR 7/2) iron depletions; common medium prominent strong brown (7.5YR 5/8) iron concentrations; strongly acid; clear wavy boundary.

C—43 to 58 inches; 34 percent light brownish gray (2.5Y 6/2), 33 percent strong brown (7.5YR 5/8), and 33 percent light gray (10YR 7/2) clay; massive; very firm; few fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; strongly acid; abrupt smooth boundary.

R—58 inches; hard limestone bedrock.

Depth to bedrock ranges from 48 to 60 inches. The content of rock fragments ranges from 0 to 10 percent throughout the profile. Reaction ranges from strongly acid to slightly alkaline.

The Ap horizon has hue of 10YR, value of 4, and chroma of 3 or 4. Texture is silt loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. It has few or common redoximorphic features in shades of gray, red, and brown. Texture is silty clay loam, silty clay, or clay.

The C horizon has hue of 10YR or 2.5Y or is neutral in hue and has value of 5 or 6 and chroma of 1 to 4. In many pedons, it has an evenly mottled pattern in these colors without a dominant matrix color. It has common or many redoximorphic features in shades of red, brown, black, and gray. Texture is clay.

Dellrose Series

The Dellrose series consists of very deep, well drained soils. These soils formed in cherty colluvium and residuum from phosphatic limestone. They are on

upland hills of the Nashville Basin. Slopes range from 12 to 45 percent.

Typical pedon of Dellrose gravelly silt loam, 12 to 20 percent slopes; from Fayetteville, 10.5 miles west on U.S. Highway 64, about 1.5 miles north on Cunningham Hollow Road, 150 feet due west of the road; lat. 35 degrees 14 minutes 14 seconds N. and long. 86 degrees 44 minutes 35 seconds W.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) gravelly silt loam; moderate medium granular structure; very friable; common fine and medium roots; 15 percent angular fragments of chert; moderately acid; clear wavy boundary.

Bt1—7 to 22 inches; dark brown (7.5YR 4/4) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common pores and voids; few faint clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 20 percent angular fragments of chert; strongly acid; gradual wavy boundary.

Bt2—22 to 42 inches; strong brown (7.5YR 4/6) gravelly silty clay; common fine distinct reddish yellow (7.5YR 6/8) and common fine prominent light yellowish brown (2.5Y 6/4) mottles; moderate medium subangular blocky structure; friable; common fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; 20 percent angular fragments of chert; very strongly acid; gradual wavy boundary.

2Bt3—42 to 65 inches; yellowish brown (10YR 5/6) clay; common medium prominent light gray (2.5Y 7/2), common medium distinct light yellowish brown (10YR 6/4), and common fine distinct strong brown (7.5YR 5/6) mottles; weak coarse and medium subangular blocky structure; very firm; few very fine roots; common prominent brown (7.5YR 5/3) clay films on faces of peds; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; 10 percent angular fragments of chert; very strongly acid.

Depth to bedrock is more than 60 inches. The content of chert fragments ranges from 10 to 35 percent in the A and Bt horizons and from 5 to 35 percent in the 2Bt horizon. Reaction ranges from slightly acid to very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Texture of the fine-earth fraction is silt loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture of the fine-earth fraction is silty clay loam.

The 2Bt horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6. It has few or common mottles in shades of gray, brown, and yellow. Texture is silty clay or clay.

Dewey Series

The Dewey series consists of very deep, well drained soils. These soils formed in residuum from limestone. They are on ridgetops of the Highland Rim. Slopes range from 2 to 5 percent.

Typical pedon of Dewey silt loam, 2 to 5 percent slopes, eroded; from Fayetteville, 16 miles east on U.S. Highway 64, about 6 miles south on Tennessee Highway 121, about 1,250 feet due southeast of the road; lat. 35 degrees 00 minutes 12 seconds N. and long. 86 degrees 21 minutes 57 seconds W.

Ap—0 to 7 inches; reddish brown (5YR 4/4) silt loam; moderate fine granular structure; very friable; many fine roots; neutral; abrupt smooth boundary.

Bt1—7 to 14 inches; dark red (2.5YR 3/6) silty clay; weak fine subangular blocky structure; friable; common very fine roots; few distinct reddish brown (2.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—14 to 24 inches; dark red (2.5YR 3/6) silty clay; common medium prominent brownish yellow (10YR 6/6) mottles; moderate fine subangular blocky structure; firm; few very fine roots; few distinct reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent chert fragments; strongly acid; gradual smooth boundary.

Bt3—24 to 40 inches; red (2.5YR 4/6) silty clay; common fine prominent brownish yellow (10YR 6/6) and few fine prominent yellow (10YR 7/8) mottles; moderate fine subangular blocky structure; firm; few distinct reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent chert fragments; strongly acid; gradual smooth boundary.

Bt4—40 to 65 inches; red (2.5YR 4/8) silty clay; common medium prominent light yellowish brown (10YR 6/4) and common medium distinct strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; very firm; common distinct reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent chert fragments; strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 15 percent

throughout the profile. Reaction is strongly acid or very strongly acid.

The Ap horizon has hue of 5YR or 7.5YR and value and chroma of 3 to 4. Texture is silt loam or silty clay loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 3 or 4, and chroma of 4 or 6. It has none to common mottles in shades of brown, yellow, and red. Texture is silty clay or clay.

Dickson Series

The Dickson series consists of very deep, moderately well drained soils that have a fragipan in the subsoil. These soils formed in a silty mantle about 2 to 4 feet thick and the underlying residuum of cherty limestone or old alluvium. They are on broad ridges and side slopes of the Highland Rim. Slopes range from 2 to 12 percent.

Typical pedon of Dickson silt loam, 2 to 5 percent slopes; from Fayetteville, 2.0 miles south on U.S. Highway 431, about 13 miles southwest on Tennessee Highway 110 to Taft, 1.5 miles south on Old Railroad Bed Road, 700 feet due east of the road; lat. 34 degrees 59 minutes 48 seconds N. and long. 86 degrees 43 minutes 04 seconds W.

Ap—0 to 5 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; very friable; common fine and medium roots; moderately acid; clear smooth boundary.

Bw1—5 to 12 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; common pores and voids; strongly acid; abrupt smooth boundary.

Bw2—12 to 24 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; common pores and voids; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese accumulations and concretions; very strongly acid; clear smooth boundary.

B/E—24 to 29 inches; 60 percent yellowish brown (10YR 5/6) silt loam (B part) and 40 percent light brownish gray (10YR 6/2) silt loam (E part); moderate medium subangular blocky structure in B part; weak fine subangular blocky structure in E part; friable (B part) and very friable (E part); few fine roots; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese accumulations and concretions; few fine distinct gray (10YR 6/1) iron depletions; few fine distinct strong brown (7.5YR 5/6) iron concentrations; brittle in 40 percent of the mass; very strongly acid; clear smooth boundary.

Btx1—29 to 45 inches; yellowish brown (10YR 5/6) silty clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few distinct yellowish brown (10YR 5/4) clay films on faces of prisms; common medium distinct light brownish gray (10YR 6/2) silt loam coatings in vertical seams between prisms; common medium distinct pale brown (10YR 6/3) iron depletions; common medium distinct strong brown (7.5YR 5/8) iron concentrations on faces of prisms; brittle in 70 percent of the mass; very strongly acid; clear smooth boundary.

Btx2—45 to 57 inches; yellowish brown (10YR 5/6) silty clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; common distinct yellowish brown (10YR 5/4) clay films on faces of prisms; common medium distinct light brownish gray (10YR 6/2) silt loam coatings in vertical seams between prisms; common medium prominent gray (10YR 6/1) iron depletions on prisms; common medium distinct strong brown (7.5YR 5/8) and common medium prominent red (2.5YR 4/8) iron concentrations on faces of prisms; brittle in 80 percent of the mass; very strongly acid; clear smooth boundary.

2Bt—57 to 60 inches; strong brown (7.5YR 5/8) silty clay loam; moderate medium subangular blocky structure; firm; few distinct brown (7.5YR 5/4) clay films on faces of peds; common coarse distinct red (2.5YR 4/8) iron concentrations on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions on faces of peds; 2 percent chert fragments; very strongly acid.

Depth to bedrock is more than 60 inches. Depth to the fragipan ranges from 18 to 36 inches. The content of rock fragments ranges from 0 to 10 percent in the Ap, Bw, and Btx horizons and from 0 to 35 percent in the 2Bt horizon. Reaction ranges from moderately acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Texture is silt loam.

The Bw or Bt horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 or 6. It has few or common redoximorphic features in shades of yellow, brown, and gray. Texture is silt loam or silty clay loam.

The B part of the B/E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. The E part has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or less. The horizon is silt loam.

The Btx horizon has hue of 10YR or 2.5Y, value of

5 or 6, and chroma of 3 to 6. It has common redoximorphic features in shades of yellow, brown, and gray. In some pedons, the horizon has an evenly mottled pattern in these colors without a dominant matrix color. Texture is silt loam or silty clay loam.

The 2Bt horizon has hue of 7.5YR, 5YR, or 2.5YR, value of 3 to 5, and chroma of 4 to 8. In many pedons, the horizon has an evenly mottled pattern in shades of red, yellow, brown, and gray. Texture of the fine-earth is silty clay loam, silty clay, or clay.

Egam Series

The Egam series consists of very deep, well drained and moderately well drained soils. These soils formed in clayey alluvium on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Egam silt loam, frequently flooded; from Fayetteville, 1.5 miles west on U.S. Highway 64, about 0.75 mile south on Tennessee Highway 15/U.S. Highway 64 Bypass, 200 feet due west of the road; lat. 35 degrees 08 minutes 22 seconds N. and long. 86 degrees 36 minutes 43 seconds W.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular and subangular blocky structure; firm; many fine and medium roots; slightly acid; clear wavy boundary.

Bw1—5 to 22 inches; very dark grayish brown (10YR 3/2) clay; strong coarse subangular and angular blocky structure parting to moderate medium prismatic; firm; common fine roots; common pores and voids; many continuous prominent very dark brown (10YR 2/2) clay films on vertical faces of peds; neutral; clear wavy boundary.

Bw2—22 to 37 inches; dark grayish brown (2.5Y 4/2) clay; moderate medium subangular and angular blocky structure; extremely firm; common fine roots; common pores and voids; common distinct very dark gray (10YR 3/1) clay films on vertical faces of peds; neutral; clear wavy boundary.

C1—37 to 49 inches; light olive brown (2.5Y 5/4) silty clay loam; common fine faint light yellowish brown (2.5Y 6/4) and light olive brown (2.5Y 5/6) mottles; massive; firm; common fine distinct dark yellowish brown (10YR 4/2) and brown (10YR 4/3) stains in root channels and pores; few very fine roots; common pores and voids; few distinct very dark gray (10YR 3/1) clay films in pores and channels; few fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; slightly acid; gradual wavy boundary.

C2—49 to 60 inches; 34 percent light brownish gray (10YR 6/2), 33 percent yellowish brown (10YR 5/6), and 33 percent light olive brown (2.5Y 5/4) silty clay loam; massive; firm; few very fine roots; common pores and voids; common distinct very dark gray (10YR 3/1) clay films in pores and channels; common fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; neutral.

Depth to bedrock is more than 60 inches. The mollic epipedon ranges from 24 to 50 inches in thickness. Reaction ranges from moderately alkaline to moderately acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3, and chroma of 2 or 3. Texture is silt loam, silty clay loam, or silty clay.

The Bw horizon has hue of 10YR, value of 3, and chroma of 1 to 3. It has none or few redoximorphic features in shades of brown and gray. Texture is clay or silty clay.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 6. It has few or common redoximorphic features in shades of brown and gray. In some pedons, it has an evenly mottled pattern in these colors without a dominant matrix color. Texture is silty clay loam, silty clay, or clay.

Ennis Series

The Ennis series consists of very deep, well drained soils. These soils formed in gravelly alluvial sediments. They are on narrow flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Ennis gravelly silt loam, occasionally flooded; from Fayetteville, 3 miles west on U.S. Highway 64, about 15 miles southwest on Tennessee Highway 273, about 1.25 miles north on McBurg-Dellrose Road, 0.25 mile northeast on Buford Hughey Road, 50 feet south of a gravel road in a field; lat. 35 degrees 07 minutes 55 seconds N. and long. 86 degrees 48 minutes 26 seconds W.

Ap—0 to 9 inches; dark brown (10YR 4/3) gravelly silt loam; moderate medium granular structure; very friable; many fine and medium roots; 15 percent fragments of chert; moderately acid; clear smooth boundary.

Bw1—9 to 20 inches; yellowish brown (10YR 5/4) gravelly loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent fragments of chert; strongly acid; gradual smooth boundary.

Bw2—20 to 38 inches; brown (10YR 5/3) gravelly silt loam; moderate medium subangular blocky structure; friable; few fine roots; 20 percent

fragments of chert; strongly acid; gradual smooth boundary.
Bw3—38 to 55 inches; yellowish brown (10YR 5/4) gravelly silt loam; few fine distinct yellowish brown (10YR 5/8) and few fine faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; 30 percent fragments of chert; strongly acid; gradual smooth boundary.
C—55 to 60 inches; yellowish brown (10YR 5/4) gravelly silt loam; massive; friable; common medium distinct yellowish brown (10YR 5/8) iron concentrations and light brownish gray (10YR 6/2) iron depletions; 35 percent fragments of chert; strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 15 to 35 percent throughout the profile. Reaction ranges from moderately acid to very strongly acid.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Texture is gravelly silt loam.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It has none to common mottles in shades of brown. Texture is gravelly silt loam.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 4 or 6. It has none or few redoximorphic features in shades of brown and gray. Texture is gravelly silt loam or very gravelly silt loam.

Etowah Series

The Etowah series consists of very deep, well drained soils. These soils formed in old alluvium. They are on stream terraces. Slopes range from 2 to 20 percent.

Typical pedon of Etowah silt loam, 5 to 12 percent slopes, eroded; from Fayetteville, 7 miles east on U.S. Highway 64, about 1.75 miles northeast on Champ Road, 2,400 feet south on a field road, 500 feet east in a field; lat. 35 degrees 07 minutes 55 seconds N. and long. 86 degrees 26 minutes 36 seconds W.

Ap—0 to 4 inches; brown (7.5YR 3/4) silt loam; moderate medium granular structure; very friable; many fine and medium roots; moderately acid; abrupt smooth boundary.
Bt1—4 to 27 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and nodules; very strongly acid; clear smooth boundary.
Bt2—27 to 52 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; few distinct black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; very strongly acid; clear smooth boundary.
Bt3—52 to 65 inches; yellowish red (5YR 4/6) clay loam; weak medium subangular blocky structure; friable; 10 percent chert gravel; very strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 15 percent throughout the profile. Reaction ranges from moderately acid to very strongly acid.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4. Texture is silt loam.

The Bt horizon has hue of 7.5YR to 2.5YR, value of 4 or 5, and chroma of 6 to 8. It has none to common mottles in shades of yellow, red, and brown. Texture is silty clay loam or clay loam.

Guthrie Series

The Guthrie series consists of very deep, poorly drained soils that have a fragipan in the lower part of the subsoil. These soils formed in a silty mantle and the underlying residuum weathered from cherty limestone or old alluvium. They are on upland flats and in depressions of the Highland Rim. Slopes range from 0 to 2 percent.

Typical pedon of Guthrie silt loam, ponded; from Fayetteville, 2.25 miles south on U.S. Highway 231, about 12.25 miles southwest on Tennessee Highway 110, about 600 feet due north of the road; lat. 35 degrees 00 minutes 57 seconds N. and long. 86 degrees 41 minutes 34 seconds W.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; common fine and medium roots; common medium prominent yellowish brown (10YR 5/8) iron concentrations; strongly acid; abrupt smooth boundary.
Bg1—7 to 15 inches; light gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine prominent brownish yellow (10YR 6/8) iron concentrations; very strongly acid; clear smooth boundary.
Bg2—15 to 24 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common fine prominent

brownish yellow (10YR 6/8) and yellowish brown (10YR 5/8) iron concentrations; very strongly acid; clear smooth boundary.

Btx1—24 to 35 inches; light brownish gray (10YR 6/2) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few distinct gray (10YR 5/1) clay films on faces of prisms; common coarse distinct gray (10YR 6/1) and light gray (10YR 7/1) silt loam coatings in vertical seams between prisms; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium distinct brownish yellow (10YR 6/6), light yellowish brown (10YR 6/4), and yellowish brown (10YR 5/8) iron concentrations; 5 percent chert gravel; brittle in 70 percent of the mass; very strongly acid; clear smooth boundary.

Btx2—35 to 45 inches; light brownish gray (10YR 6/2) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; few distinct gray (10YR 5/1) clay films on faces of prisms; common coarse distinct gray (10YR 6/1) and light gray (10YR 7/1) silt loam coatings in vertical seams between prisms; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium prominent strong brown (7.5YR 5/8) and red (2.5YR 5/8) iron concentrations; 5 percent chert gravel; brittle in 75 percent of the mass; very strongly acid; clear smooth boundary.

Btx3—45 to 60 inches; light brownish gray (10YR 6/2) silty clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; few distinct gray (10YR 5/1) clay films on faces of prisms; common coarse distinct gray (10YR 6/1) and light gray (10YR 7/1) silt loam coatings in vertical seams between prisms; few medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium prominent yellowish brown (10YR 5/8) and brownish yellow (10YR 6/8) iron concentrations; 2 percent chert gravel; brittle in 80 percent of the mass; very strongly acid.

Depth to bedrock is more than 60 inches. Depth to the fragipan ranges from 20 to 40 inches. The content of rock fragments ranges from 0 to 3 percent above the fragipan and from 0 to 15 percent in the fragipan. Reaction ranges from extremely acid to strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is silt loam.

The Bg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or less. It has few or common redoximorphic features in shades of yellow and brown. Texture is silt loam.

The Btx horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or less. It has few or common redoximorphic features in shades of yellow, red, and brown. In some pedons, it has an evenly mottled pattern in shades of yellow, gray, and brown. Texture is silt loam or silty clay loam.

Hampshire Series

The Hampshire series consists of deep, well drained soils. These soils formed in clayey residuum of interbedded limestone and shale and the underlying residuum of interbedded siltstone, fine-grained sandstone, shale, and limestone. They are on ridges and side slopes of the Nashville Basin. Slopes range from 5 to 20 percent.

Typical pedon of Hampshire silt loam, 5 to 12 percent slopes, eroded; from Fayetteville, west 2.0 miles on U.S. Highway 64, about 3.25 miles northwest on Old Boonshill Road, 3.25 miles north on Marsh Mill Road, 0.75 mile west on Brown Teal Road, 3.0 miles north on Haysland Road, 100 feet west of the road; lat. 35 degrees 14 minutes 14 seconds N. and long. 86 degrees 39 minutes 50 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; common fine and medium roots; slightly acid; clear smooth boundary.

Bt1—5 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; moderately acid; gradual smooth boundary.

Bt2—15 to 32 inches; strong brown (7.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 10 percent rock fragments; moderately acid; gradual smooth boundary.

C—32 to 45 inches; strong brown (7.5YR 5/6) silty clay; massive; very firm; common black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 10 percent rock fragments; moderately acid; abrupt smooth boundary.

2Cr—45 to 60 inches; interbedded sandstone, siltstone, and limestone.

Depth to bedrock ranges from 40 to 60 inches. The content of rock fragments ranges from 0 to 15 percent in the A and Bt horizons and from 10 to 50 percent in

the BC and C horizons. Reaction ranges from moderately acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. Texture is silt loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. Texture is silty clay loam, silty clay, or clay.

The C horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. Texture is silty clay, silty clay loam, clay, or clay loam.

The 2Cr horizon is weathered interbedded siltstone, sandstone, shale, or limestone.

Hawthorne Series

The Hawthorne series consists of moderately deep, somewhat excessively drained soils. These soils formed in residuum of interbedded siltstone and cherty limestone. They are on narrow ridgetops and hillsides of the Highland Rim. Slopes range from 5 to 45 percent.

Typical pedon of Hawthorne gravelly silt loam, 5 to 15 percent slopes; from Fayetteville, 8.0 miles north on U.S. Highway 231 to Mimosa Road, 1.0 mile east on Mimosa Road, 6 feet south of the road; lat. 35 degrees 15 minutes 31 seconds N. and long. 86 degrees 33 minutes 00 seconds W.

Ap—0 to 10 inches; dark brown (10YR 4/3) gravelly silt loam; moderate medium granular structure; friable; many medium and fine roots; 30 percent fragments of chert: moderately acid; clear smooth boundary.

BE—10 to 17 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak medium subangular blocky structure; friable; few fine roots; 30 percent fragments of chert; strongly acid; clear smooth boundary.

Bw1—17 to 23 inches; dark yellowish brown (10YR 4/6) very gravelly silty clay loam; weak medium subangular blocky structure; firm; few fine roots; 40 percent fragments of chert and siltstone; moderately acid; clear smooth boundary.

Bw2—23 to 34 inches; strong brown (7.5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; few distinct clay films; 40 percent fragments of chert and siltstone; strongly acid; clear smooth boundary.

Cr—34 to 60 inches; alternating strata of hard fractured chert, horizontally bedded siltstone, and thin strata of silty clay loam.

Depth to bedrock ranges from 27 to 40 inches. The content of rock fragments ranges from 10 to 35 percent in the A horizon and from 35 to 60 percent in the B and C horizons. Reaction ranges from extremely acid to strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture of the fine-earth fraction is silt loam.

Thin transitional horizons occur in most pedons. They are similar in color and texture to the adjacent horizons.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. It has none to common mottles in shades of yellow, brown, and red. Texture of the fine-earth fraction is silt loam or silty clay loam.

The C horizon, if it occurs, has hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture of the fine-earth fraction is silt loam or silty clay loam.

The Cr horizon is a mixture of highly weathered siltstone and hard chert interlayered with thin strata of silty clay loam or clay.

Ironcity Series

The Ironcity series consists of very deep, well drained soils. These soils formed in a silty mantle that is 2 to 3 feet thick and in the underlying residuum from cherty limestone. They are on ridgetops and hillsides of the Highland Rim. Slopes range from 2 to 12 percent.

Typical pedon of Ironcity gravelly silt loam, 2 to 5 percent slopes; from Fayetteville, 5 miles south on U.S. Highway 431, about 1.0 mile southeast on Prospect Road, 1.25 miles south on Patrick Road, 0.5 mile south to the end of Smith Road, approximately 2,000 feet southeast of the road; lat. 35 degrees 03 minutes 10 seconds N. and long. 86 degrees 33 minutes 02 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) gravelly silt loam; moderate medium granular structure; very friable; many fine and medium roots; 15 percent fragments of chert; neutral; abrupt smooth boundary.

E—6 to 9 inches; brown (10YR 5/3) gravelly silt loam; weak fine granular structure; very friable; common fine roots; 20 percent fragments of chert; slightly acid; gradual smooth boundary.

Bt1—9 to 27 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; common medium distinct light yellowish brown (10YR 6/4) and few medium prominent yellowish red (5YR 5/6) mottles; weak fine subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; 20 percent

fragments of chert; strongly acid; gradual smooth boundary.

Bt2—27 to 36 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; common medium distinct light yellowish brown (10YR 6/4) and many medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; 25 percent fragments of chert; strongly acid; gradual smooth boundary.

2Bt3—36 to 42 inches; 34 percent red (2.5YR 4/6), 33 percent white (10YR 8/2), and 33 percent yellowish brown (10YR 5/6) very gravelly silty clay; moderate medium subangular blocky structure; firm; common distinct brownish yellow (10YR 5/4) clay films on faces of peds; 40 percent fragments of chert; strongly acid; gradual smooth boundary.

2Bt4—42 to 65 inches; 60 percent reddish brown (5YR 4/4) and 40 percent dark red (2.5YR 3/6) very gravelly clay; weak medium subangular blocky structure; firm; common prominent reddish brown (5YR 4/3) clay films on faces of peds; 45 percent fragments of chert; very strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 15 to 25 percent in the A horizon and from 15 to 50 percent in the Bt and 2Bt horizons. Reaction ranges from slightly acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Texture of the fine-earth fraction is silt loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture of the fine-earth fraction is silt loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture of the fine-earth fraction is silt loam or silty clay loam.

The 2Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4 or 6. Texture of the fine-earth fraction is silty clay loam, silty clay, or clay.

Lindell Series

The Lindell series consists of very deep, moderately well drained soils. These soils formed in loamy alluvium on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Lindell silt loam, occasionally flooded; from Fayetteville, 10 miles on U.S. Highway 64W, 1.5 miles southwest on Barnes Hollow Road, 600 feet north of the road; lat. 35 degrees 11 minutes 40 seconds N. and long. 86 degrees 43 minutes 22 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; common fine and medium roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; 2 percent rounded gravel; slightly acid; clear smooth boundary.

Bw1—6 to 13 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 5 percent rounded gravel; slightly acid; gradual smooth boundary.

Bw2—13 to 20 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common fine and medium faint (10YR 6/2) light brownish gray iron depletions; 10 percent rounded gravel; slightly acid; gradual smooth boundary.

Bw3—20 to 42 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium subangular blocky structure; friable; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common fine distinct dark yellowish brown (10YR 4/6) iron concentrations; common coarse distinct light gray (10YR 7/2) iron depletions; 10 percent rounded gravel; neutral; gradual smooth boundary.

C—42 to 60 inches; 34 percent light gray (10YR 7/2), 33 percent yellowish brown (10YR 5/4), and 33 percent yellowish brown (10YR 5/8) gravelly clay loam; massive; friable; many medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; 15 percent rounded gravel; neutral.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 20 percent in the A horizon, from 0 to 15 percent in the B horizon, and from 0 to 30 percent in the C horizon. Reaction ranges from moderately acid to neutral throughout the profile.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Texture is silt loam or loam.

The upper part of the Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. The lower part of the horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 4 or has an evenly mottled pattern without a dominant matrix color. The horizon has few or common redoximorphic features in shades of gray and brown. Texture is silt loam, loam, clay loam, or silty clay loam.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4 or has an evenly mottled pattern in shades of gray and brown. Texture of the fine-earth fraction is loam, silt loam, clay loam, or silty clay loam.

Mimosa Series

The Mimosa series consists of deep, well drained soils. These soils formed in clayey residuum from limestone on footslopes and hillsides of the Nashville Basin. Slopes range from 5 to 40 percent.

Typical pedon of Mimosa silt loam, 5 to 12 percent slopes, eroded; from Fayetteville, 12 miles west on U.S. Highway 64 to Barnes Hollow Road, 1 mile south on Barnes Hollow Road, 45 feet due east of the road; lat. 35 degrees 11 minutes 37 seconds N. and long. 86 degrees 43 minutes 36 seconds W.

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam; strong medium granular structure; friable; common fine and medium roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; slightly acid; abrupt smooth boundary.

Bt1—6 to 18 inches; yellowish brown (10YR 5/8) silty clay loam; few fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions and nodules; strongly acid; clear smooth boundary.

Bt2—18 to 38 inches; yellowish brown (10YR 5/8) clay; common medium distinct yellowish red (5YR 5/8) and many medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium and coarse subangular blocky structure; very firm; sticky; plastic; few very fine roots; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions and nodules; 2 percent fragments of chert; very strongly acid; gradual smooth boundary.

Bt3—38 to 47 inches; yellowish brown (10YR 5/8) clay; common fine distinct grayish brown (10YR 5/2), brownish yellow (10YR 6/6), and yellowish red (5YR 5/8) mottles; weak medium and coarse subangular blocky structure; very firm; sticky; plastic; few very fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions and nodules; 2 percent fragments of chert; very strongly acid; gradual smooth boundary.

BC—47 to 58 inches; light olive brown (2.5Y 5/4) clay; many coarse prominent light gray (10YR 7/2) and yellowish red (5YR 5/8) mottles; massive; very firm; sticky; plastic; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; 2 percent rock fragments; moderately acid; abrupt smooth boundary.

R—58 inches; hard limestone bedrock.

Depth to bedrock ranges from 40 to 60 inches. The content of rock fragments ranges from 0 to 25 percent in the surface layer and is 5 percent or less in the B horizon. Reaction ranges from moderately acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6. Where value is 3, the horizon is less than 7 inches thick. Texture typically is silt loam or silty clay loam but ranges to silty clay in severely eroded areas.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. It has mottles in shades of brown, yellow, and red. Texture is silty clay or clay.

The BC horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 4 or 6. It has mottles in shades of brown, red, and gray. Texture is silty clay or clay.

Mountview Series

The Mountview series consists of very deep, well drained soils. These soils formed in a silty mantle over residuum from limestone. They are on ridgetops and side slopes of the Highland Rim. Slopes range from 2 to 12 percent.

Typical pedon of Mountview silt loam, 2 to 5 percent slopes; from Fayetteville, 13.2 miles east on U.S. Highway 64, about 0.9 mile south on Tennessee Highway 121, about 0.4 mile west on Watermill Road, 50 feet due south of the road; lat. 35 degrees 03 minutes 51 seconds N. and long. 86 degrees 22 minutes 54 seconds W.

Ap—0 to 8 inches; yellowish brown (10YR 5/4) silt loam; moderate medium granular structure; very friable; common fine roots; few fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and nodules; moderately acid; clear smooth boundary.

Bt1—8 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt2—20 to 31 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct

reddish brown (5YR 4/4) clay films on faces of peds; common medium distinct red (2.5YR 4/6) iron concentrations; common medium yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) clay and iron depletions; 10 percent angular fragments of chert; strongly acid; clear smooth boundary.

2Bt3—31 to 39 inches; red (2.5YR 4/6) silty clay; common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; many distinct reddish brown (5YR 4/4) clay films on faces of peds; 5 percent angular fragments of chert; very strongly acid; clear smooth boundary.

2Bt4—39 to 65 inches; red (2.5YR 4/6) clay; few fine prominent pale brown (10YR 6/3) and common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; many distinct reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent angular fragments of chert; very strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 5 percent in the upper 30 inches of the profile and from 5 to 35 percent below that depth. Reaction ranges from moderately acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4. Texture is silt loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. Texture is silty clay loam or silt loam.

The 2Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6. It has mottles and redoximorphic features in shades of brown, yellow, gray, and red. Texture is silty clay loam, silty clay, or clay.

Nesbitt Series

The Nesbitt series consists of very deep, moderately well drained soils. These soils formed in silty alluvium and the underlying residuum from limestone. They are on stream terraces. Slopes range from 2 to 5 percent.

Typical pedon of Nesbitt silt loam, 2 to 5 percent slopes; from Fayetteville, 6.75 miles east on U.S. Highway 64 to Kelso, 75 feet south into a field; lat. 35 degrees 07 minutes 43 seconds N. and long. 86 degrees 28 minutes 09 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; few fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; 5 percent rounded and subrounded gravel; slightly acid; clear smooth boundary.

BA—6 to 17 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; 5 percent rounded and subrounded gravel; moderately acid; gradual smooth boundary.

Bt1—17 to 29 inches; yellowish brown (10YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; common fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; common medium distinct strong brown (7.5YR 5/8) iron concentrations; common medium distinct light yellowish brown (10YR 6/4) and few fine prominent light gray (10YR 7/2) iron depletions; 5 percent rounded and subrounded gravel; brittle in 25 percent of the mass; moderately acid; gradual smooth boundary.

Bt2—29 to 48 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations and concretions; common medium distinct strong brown (7.5YR 5/8) iron concentrations; common medium distinct light gray (10YR 7/2) iron depletions; 5 percent rounded and subrounded gravel; brittle in 30 percent of the mass; strongly acid; gradual wavy boundary.

2Bt3—48 to 65 inches; yellowish brown (10YR 5/6) silty clay; weak medium subangular blocky structure; firm; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium distinct strong brown (7.5YR 5/8) iron concentrations; common medium distinct light yellowish brown (10YR 6/4) and light gray (10YR 7/2) iron depletions; 2 percent angular fragments of chert; strongly acid.

Depth to bedrock is more than 60 inches. The content of chert fragments and gravel ranges from 0 to 5 percent in the A and Bt horizons and from 0 to 10 percent in the 2Bt horizon. Reaction is moderately acid or strongly acid throughout the profile.

The Ap horizon has hue of 10YR and value and chroma of 3 or 4. Texture is silt loam.

Thin transitional horizons occur in some pedons. They are similar in color and texture to the adjacent horizons.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. It has few or common redoximorphic features in shades of gray, brown, and red. Typically the middle and lower parts of the Bt horizon are brittle in about 25 to 50 percent of the mass. The horizon is silt loam or silty clay loam.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. It has few or common redoximorphic features in shades of gray and brown. Texture is silty clay.

Sengtown Series

The Sengtown series consists of very deep, well drained soils. These soils formed in residuum weathered from cherty limestone. They are on ridgetops and hillsides of the Highland Rim. Slopes range from 5 to 20 percent.

Typical pedon of Sengtown gravelly silt loam, 5 to 12 percent slopes; from Fayetteville, 14 miles east on U.S. Highway 64, about 2.75 miles north on Tennessee Highway 121, about 300 feet southeast of the road in a field; lat. 35 degrees 06 minutes 27 seconds N. and long. 86 degrees 02 minutes 59 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3) gravelly silt loam; weak fine granular structure; very friable; many fine and medium roots; 15 percent fragments of chert; moderately acid; abrupt smooth boundary.

E—4 to 9 inches; brown (7.5YR 5/4) gravelly silt loam; weak medium subangular blocky structure; friable; common fine roots; 15 percent fragments of chert; moderately acid; clear smooth boundary.

Bt1—9 to 18 inches; yellowish red (5YR 5/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds; 18 percent fragments of chert; moderately acid; gradual wavy boundary.

Bt2—18 to 26 inches; yellowish red (5YR 5/8) gravelly clay; few fine prominent brownish yellow (10YR 6/6) and few fine distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; few fine roots; common distinct reddish brown (5YR 5/4) clay films on faces of peds; firm; 20 percent fragments of chert; strongly acid; gradual wavy boundary.

Bt3—26 to 42 inches; red (2.5YR 4/8) gravelly clay; common medium prominent yellowish brown (10YR 5/8) and brownish yellow (10YR 6/6) and common fine distinct red (10R 4/8) mottles; moderately medium subangular blocky structure; firm; few distinct red (2.5YR 4/6) clay films on faces of peds; 35 percent fragments of chert; strongly acid; gradual wavy boundary.

Bt4—42 to 65 inches; yellowish red (5YR 5/6) gravelly clay; common medium prominent red (10R 4/8) and olive yellow (2.5Y 6/6) mottles; weak medium subangular blocky structure; firm; 35 percent fragments of chert; strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 15 to 35 percent throughout the profile. Reaction is moderately acid or strongly acid.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. Texture of the fine-earth fraction is silt loam.

The E horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 or 4. Texture of the fine-earth fraction is silt loam.

The Bt1 horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. It has none to common mottles in shades of brown. Texture of the fine-earth fraction is silty clay loam.

The Bt2, Bt3, and Bt4 horizons have hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. They have mottles in shades of brown, yellow, and red. Texture of the fine-earth fraction is silty clay or gravelly clay.

Sequatchie Series

The Sequatchie series consists of very deep, well drained soils. These soils formed in loamy alluvium on stream terraces. Slopes range from 2 to 5 percent.

Typical pedon of Sequatchie loam, 2 to 5 percent slopes; from Fayetteville, 3.0 miles west on U.S. Highway 64, about 3.0 miles southwest on Elkton Pike, 2.5 miles south on Tennessee Highway 231, about 500 feet north in a field; lat. 35 degrees 07 minutes 26 seconds N. and long. 86 degrees 42 minutes 54 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 3/4) loam; weak medium granular structure; friable; common fine roots; moderately acid; abrupt smooth boundary.

Bt1—7 to 20 inches; strong brown (7.5YR 4/6) sandy clay loam; weak fine and medium subangular blocky structure; friable; few fine roots; few

medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; moderately acid; gradual smooth boundary.

Bt2—20 to 31 inches; strong brown (7.5YR 4/6) sandy clay loam; weak medium and coarse subangular blocky structure; friable; few fine roots; common fine pores; strongly acid; gradual smooth boundary.

BC—31 to 45 inches; 50 percent strong brown (7.5YR 5/6) and 50 percent brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; very friable; few fine roots; common fine pores; strongly acid; gradual smooth boundary.

C—45 to 60 inches; brown (7.5YR 4/4) sandy loam; massive; very friable; common fine pores; strongly acid.

Depth to bedrock is more than 60 inches. The content of rock fragments ranges from 0 to 15 percent in the A and Bt horizons and from 0 to 35 percent in the C horizon. Reaction ranges from moderately acid to very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3, and chroma of 3 or 4. Texture is loam or fine sandy loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. It has none to common mottles in shades of brown and yellow. Texture is silt loam, loam, clay loam, or sandy clay loam.

The BC horizon has hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6. It has none or few mottles in shades of yellow. Texture is clay loam, fine sandy loam, or sandy loam.

The C horizon has hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6. It has none to common mottles in shades of yellow. Texture is sandy loam.

Taft Series

The Taft series consists of very deep, somewhat poorly drained soils that have a fragipan in the subsoil. They formed in a silty mantle about 2 to 4 feet thick and in the underlying residuum that weathered from cherty limestone or old alluvium. They are on upland flats, on low stream terraces, and in depressions on the Highland Rim. Slopes range from 0 to 2 percent.

Typical pedon of Taft silt loam; from Fayetteville, 2.25 miles south on U.S. Highway 231, about 10 miles southwest on Tennessee Highway 110, about 0.75 mile south on Fowler Road, 115 feet due west of the road; lat. 35 degrees 01 minute 09 seconds N. and long. 86 degrees 39 minutes 27 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; very friable; common fine distinct yellowish brown (10YR 5/6) iron concentrations; slightly acid; abrupt smooth boundary.

E—8 to 14 inches; light olive brown (2.5Y 5/4) silt loam; few medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; very friable; common fine roots; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; very strongly acid; clear smooth boundary.

Bw—14 to 26 inches; light yellowish brown (2.5Y 6/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct light brownish gray (2.5Y 6/2) iron depletions; very strongly acid; clear smooth boundary.

E/B—26 to 34 inches; 65 percent light brownish gray (10YR 6/2) silt loam (E part) and 35 percent light yellowish brown (2.5Y 6/4) silt loam (B part); weak fine and medium subangular blocky structure in E part; moderate fine and medium subangular blocky structure in B part; very friable (E part) and friable (B part); few fine roots; many medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common coarse prominent strong brown (7.5YR 5/8) iron concentrations; very strongly acid; clear irregular boundary.

Btx1—34 to 45 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; common distinct brown (10YR 5/3) clay films on faces of prisms; common coarse distinct light brownish gray (10YR 6/2) silt loam coatings as vertical seams between prisms; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium prominent strong brown (7.5YR 5/8) iron concentrations on faces of prisms and in seams; brittle in 70 percent of the mass; very strongly acid; clear smooth boundary.

Btx2—45 to 52 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; common distinct brown (10YR 5/3) clay films on faces of prisms; common coarse distinct light brownish gray (10YR 6/2) silt loam coatings as vertical seams between prisms; common medium black (10YR 2/1) and dark brown (10YR 3/3) manganese concretions; common medium prominent strong brown (7.5YR 5/8) iron concentrations on faces of prisms and in seams; brittle in 70 percent of the mass; very strongly acid; clear smooth boundary.

2Bt—52 to 60 inches; 25 percent red (2.5YR 4/8), 25 percent brownish yellow (10YR 6/8), 25 percent light brownish gray (10YR 6/2), and 25 percent yellowish brown (10YR 5/8) silty clay loam; moderate medium subangular blocky structure; firm; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; very strongly acid.

Depth to bedrock is more than 60 inches. Depth to the fragipan ranges from 20 to 36 inches. The content of rock fragments ranges from 0 to 3 percent above the fragipan and from 0 to 15 percent in the fragipan and the 2Bt horizon. Reaction is strongly acid or very strongly acid throughout the profile.

The Ap horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. Texture is silt loam.

The E horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4. It has none or few redoximorphic features in shades of brown and yellow. Texture is silt loam.

The Bw horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4. It has few or common redoximorphic features in shades of gray and brown. Texture is silt loam.

The Btx horizon has hue of 10YR or 2.5Y and value and chroma of 4 or 6 or has an evenly mottled pattern in these colors without a dominant matrix color. It has few or common redoximorphic features in shades of brown, yellow, and gray. Texture is silt loam or silty clay loam.

The 2Bt horizon has hue of 10YR, value of 4 or 5, and chroma of 4 to 8 or has an evenly mottled pattern in these colors without a dominant matrix color. It has common redoximorphic features in shades of yellow, brown, red, and gray. Texture is silty clay loam or silty clay.

Tupelo Series

The Tupelo series consists of very deep, somewhat poorly drained soils. These soils formed in alluvium and the underlying clayey residuum on low stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Tupelo silt loam, occasionally flooded; from Fayetteville, 1.5 miles west on U.S. Highway 64, about 3.0 miles northwest on Old Boonshill Road, 1.0 mile north on Marsh Mill Road, 500 feet east of the road in a field; lat. 35 degrees 12 minutes 05 seconds N. and long. 86 degrees 37 minutes 52 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; many fine and medium roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; moderately acid; clear smooth boundary.

BA—8 to 16 inches; brownish yellow (10YR 6/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common fine black (10YR 2/1) and dark brown (10YR 3/3) soft manganese accumulations; common fine distinct light brownish gray (10YR 6/2) iron depletions; moderately acid; clear smooth boundary.

Bt1—16 to 24 inches; brownish yellow (10YR 6/6) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; many fine black (10YR 2/1) and dark brown (10YR 3/3) manganese accumulations and concretions; common fine distinct light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/8) iron concentrations; common medium and coarse distinct light gray (10YR 7/2) iron depletions; 5 percent gravel; moderately acid; gradual smooth boundary.

Bt2—24 to 32 inches; light olive brown (2.5Y 5/6) clay; moderate medium subangular blocky structure; firm; common distinct light olive brown (2.5Y 5/4) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/4) and brownish yellow (10YR 6/6) iron concentrations; common medium prominent light gray (10YR 7/2) iron depletions; 5 percent gravel; strongly acid; clear smooth boundary.

Btg—32 to 51 inches; light brownish gray (10YR 6/2) clay; weak medium subangular blocky structure; very firm; common distinct gray (10YR 6/1) clay films on faces of peds; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) manganese accumulations and concretions; common medium prominent yellowish brown (10YR 5/8) iron concentrations; 5 percent gravel; strongly acid; gradual smooth boundary.

Cg—51 to 65 inches; gray (5Y 6/1) clay; massive; very firm; many fine and medium black (10YR 2/1) and dark brown (10YR 3/3) manganese accumulations and concretions; common medium prominent yellowish brown (10YR 5/4) iron concentrations; common medium prominent light brownish gray (10YR 6/2) clay depletions; 5 percent gravel; strongly acid.

Depth to bedrock is more than 60 inches. The content of gravel ranges from 0 to 5 percent throughout the profile. Reaction is moderately acid or strongly acid.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is silt loam.

Thin transitional horizons occur in some pedons.

They are similar in color and texture to the adjacent horizons.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8. It has few or common redoximophic features in shades of gray, brown, and yellow. Texture is silty clay loam, silty clay, or clay.

The Btg horizon has hue of 10YR to 5Y or is neutral in hue and has value of 5 to 7 and chroma of 1 or 2. It has few or common redoximorphic features in shades of brown, olive, and gray. Texture is silty clay or clay.

The Cg horizon has hue of 10YR to 5Y or is neutral in hue and has value of 5 to 7 and chroma of 2 or less. It has few to many redoximorphic features in shades of yellow, brown, and olive. Texture is clay.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

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 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.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion

and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

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.

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.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

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.

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.

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.

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.

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 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.

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.

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.

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.

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.

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).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the

movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the

chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

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.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

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.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

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.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

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.

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.

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.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 2 percent
Nearly level	0 to 3 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 60 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with

trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

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.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

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.”

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.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

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 1957-88 at Fayetteville, Tennessee)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	46.0	24.0	35.0	71	-7	12	4.69	2.47	6.63	8	2.3
February-	50.6	27.2	38.9	75	3	21	4.41	2.55	6.06	7	1.3
March----	60.7	36.1	48.4	82	14	98	5.74	3.27	7.92	8	0.2
April----	71.2	44.2	57.7	87	24	241	4.78	2.71	6.61	7	0.0
May------	78.9	52.8	65.9	91	32	493	4.87	2.53	6.91	7	0.0
June-----	86.2	60.6	73.4	97	43	702	3.56	1.73	5.13	6	0.0
July-----	89.0	64.8	76.9	98	51	834	4.32	2.64	5.82	8	0.0
August---	88.8	63.4	76.1	99	49	809	3.27	1.95	4.44	6	0.0
September	83.1	57.4	70.3	95	38	609	3.69	1.50	5.53	5	0.0
October--	72.6	44.2	58.4	88	24	286	3.27	1.45	4.83	5	0.0
November-	61.3	36.1	48.7	81	14	79	4.79	2.59	6.71	7	0.2
December-	50.8	28.7	39.8	72	5	32	5.16	2.56	7.40	8	0.7
Yearly:											
Average-	69.9	45.0	57.5	---	---	---	---	---	---	---	---
Extreme-	---	---	---	100	-7	---	---	---	---	---	---
Total---	---	---	---	---	---	4,216	52.55	44.73	59.72	82	4.7

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

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1957-88 at Fayetteville, Tennessee)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 9	Apr. 24	May 3
2 years in 10 later than--	Apr. 5	Apr. 19	Apr. 29
5 years in 10 later than--	Mar. 28	Apr. 9	Apr. 20
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 27	Oct. 10	Oct. 2
2 years in 10 earlier than--	Nov. 1	Oct. 16	Oct. 6
5 years in 10 earlier than--	Nov. 10	Oct. 27	Oct. 14

Table 3.—Growing Season

(Recorded in the period 1957-88 at Fayetteville, Tennessee)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	208	180	158
8 years in 10	215	187	164
5 years in 10	228	200	176
2 years in 10	241	214	188
1 year in 10	249	222	195

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
Ag	Agee silty clay loam, rarely flooded	532	0.1
AmB	Armour silt loam, 2 to 5 percent slopes	11,598	3.2
Ar	Arrington silt loam, frequently flooded	17,513	4.8
BaC	Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes	24,615	6.7
BaE	Barfield-Ashwood-Rock outcrop complex, 20 to 40 percent slopes	30,135	8.2
BwB	Bewleyville silt loam, 2 to 5 percent slopes	4,982	1.4
BwC	Bewleyville silt loam, 5 to 12 percent slopes	1,986	0.5
CpB	Capshaw silt loam, 2 to 5 percent slopes	2,562	0.7
DeD	Dellrose gravelly silt loam, 12 to 20 percent slopes	4,629	1.3
DeE	Dellrose gravelly silt loam, 20 to 45 percent slopes	34,499	9.4
DfB2	Dewey silt loam, 2 to 5 percent slopes, eroded	2,396	0.7
DkB	Dickson silt loam, 2 to 5 percent slopes	25,680	7.0
DkC2	Dickson silt loam, 5 to 12 percent slopes, eroded	1,907	0.5
Eg	Egam silt loam, frequently flooded	6,136	1.7
En	Ennis gravelly silt loam, occasionally flooded	3,650	1.0
EtB	Etowah silt loam, 2 to 5 percent slopes	2,438	0.7
EtC2	Etowah silt loam, 5 to 12 percent slopes, eroded	3,592	1.0
EtD2	Etowah silt loam, 12 to 20 percent slopes, eroded	1,533	0.4
Gu	Guthrie silt loam, ponded	10,752	2.9
HaC2	Hampshire silt loam, 5 to 12 percent slopes, eroded	5,739	1.6
HaD2	Hampshire silt loam, 12 to 20 percent slopes, eroded	2,049	0.6
HwC	Hawthorne gravelly silt loam, 5 to 15 percent slopes	10,761	2.9
HwF	Hawthorne gravelly silt loam, 15 to 50 percent slopes	28,682	7.9
IrB	Ironcity gravelly silt loam, 2 to 5 percent slopes	7,008	1.9
IrC	Ironcity gravelly silt loam, 5 to 12 percent slopes	7,106	1.9
Ln	Lindell silt loam, occasionally flooded	3,758	1.0
MmC2	Mimosa silt loam, 5 to 12 percent slopes, eroded	19,728	5.4
MmD2	Mimosa silt loam, 12 to 20 percent slopes, eroded	9,038	2.5
MmE2	Mimosa silt loam, 20 to 35 percent slopes, eroded	7,128	2.0
MnC	Mimosa-Rock outcrop complex, 5 to 20 percent slopes	15,157	4.1
MnE	Mimosa-Rock outcrop complex, 20 to 40 percent slopes	8,360	2.3
MoB	Mountview silt loam, 2 to 5 percent slopes	14,629	4.0
MoC	Mountview silt loam, 5 to 12 percent slopes	4,487	1.2
NeB	Nesbitt silt loam, 2 to 5 percent slopes	1,708	0.5
Pq	Pits, quarry	38	*
SeC	Sengtown gravelly silt loam, 5 to 12 percent slopes	6,061	1.7
SeD	Sengtown gravelly silt loam, 12 to 20 percent slopes	3,576	1.0
ShB	Sequatchie loam, 2 to 5 percent slopes	1,795	0.5
Ta	Taft silt loam	12,341	3.4
Tu	Tupelo silt loam, occasionally flooded	2,915	0.8
Ur	Urban land	1,545	0.4
W	Water	556	0.2
	Total	365,300	100.0

* Less than 0.1 percent.

Table 5.—Land Capability and Yields per Acre of Crops

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

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Tobacco	Wheat
		Bu	Lbs	Bu	Lbs	Bu
Ag:						
Agee	4w	65.00	---	30.00	---	---
AmB:						
Armour	2e	115.00	900.00	55.00	2,900.00	60.00
Ar:						
Arrington	3w	120.00	900.00	40.00	---	---
BaC	6s	---	---	---	---	---
Barfield-Ashwood-Rock outcrop						
BaE	7s	---	---	---	---	---
Barfield-Ashwood-Rock outcrop						
BwB:						
Bewleyville	2e	100.00	900.00	50.00	2,700.00	55.00
BwC:						
Bewleyville	3e	90.00	800.00	35.00	2,500.00	53.00
CpB:						
Capshaw	2e	85.00	---	35.00	2,000.00	45.00
DeD:						
Dellrose	4e	75.00	---	---	2,000.00	30.00
DeE:						
Dellrose	6e	---	---	---	---	---
DfB2:						
Dewey	2e	100.00	900.00	45.00	2,400.00	50.00
DkB:						
Dickson	2e	90.00	700.00	35.00	1,900.00	50.00
DkC2:						
Dickson	3e	85.00	550.00	30.00	1,800.00	45.00
Eg:						
Egam	3w	65.00	---	35.00	---	---
En:						
Ennis	2w	70.00	600.00	25.00	1,600.00	---
EtB:						
Etowah	2e	95.00	750.00	50.00	2,500.00	50.00
EtC2:						
Etowah	3e	70.00	700.00	40.00	2,000.00	40.00

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

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Tobacco	Wheat
		Bu	Lbs	Bu	Lbs	Bu
EtD2:						
Etowah	4e	70.00	---	30.00	2,100.00	35.00
Gu:						
Guthrie	5w	---	---	---	---	---
HaC2:						
Hampshire	3e	70.00	---	---	---	42.00
HaD2:						
Hampshire	4e	---	---	---	---	28.00
HwC:						
Hawthorne	4s	---	---	---	---	---
HwF:						
Hawthorne	7s	---	---	---	---	---
IrB:						
Ironcity	2e	80.00	---	40.00	2,400.00	---
IrC:						
Ironcity	3e	75.00	---	35.00	2,250.00	---
Ln:						
Lindell	2w	110.00	700.00	40.00	1,700.00	45.00
MmC2:						
Mimosa	4e	---	---	---	---	---
MmD2:						
Mimosa	6e	---	---	---	---	---
MmE2:						
Mimosa	7e	---	---	---	---	---
MnC	6s	---	---	---	---	---
Mimosa-Rock outcrop						
MnE	7s	---	---	---	---	---
Mimosa-Rock outcrop						
MoB:						
Mountview	2e	90.00	825.00	40.00	2,400.00	55.00
MoC:						
Mountview	3e	90.00	750.00	35.00	2,250.00	50.00
NeB:						
Nesbitt	2e	90.00	---	45.00	2,200.00	45.00
Pq.						
Pits, quarry						
SeC:						
Sengtown	3e	90.00	---	32.00	2,200.00	45.00
SeD:						
Sengtown	4e	75.00	---	28.00	1,800.00	38.00

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

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Tobacco	Wheat
		Bu	Lbs	Bu	Lbs	Bu
ShB:						
Sequatchie	2e	100.00	800.00	50.00	2,100.00	50.00
Ta:						
Taft	3w	---	---	35.00	---	---
Tu:						
Tupelo	3w	---	---	30.00	---	---
Ur.						
Urban land						
W.						
Water						

Table 6.—Land Capability and Yields per Acre of 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	Alfalfa hay	Tall fescue-ladino
		Tons	AUM*
Ag:			
Agee	4w	---	7.00
AmB:			
Armour	2e	4.00	8.00
Ar:			
Arrington	3w	---	7.50
BaC:			
Barfield-Ashwood-Rock outcrop	6s	---	3.50
BaE:			
Barfield-Ashwood-Rock outcrop	7s	---	---
BwB:			
Bewleyville	2e	4.00	8.00
BwC:			
Bewleyville	3e	3.80	7.50
CpB:			
Capshaw	2e	---	6.50
DeD:			
Dellrose	4e	2.00	6.00
DeE:			
Dellrose	6e	---	4.00
DfB2:			
Dewey	2e	3.80	6.50
DkB:			
Dickson	2e	---	7.50
DkC2:			
Dickson	3e	---	7.00
Eg:			
Egam	3w	---	7.50
En:			
Ennis	2w	---	6.50
EtB:			
Etowah	2e	3.80	8.00

See footnote at end of table.

Table 6.—Land Capability and Yields per Acre of Pasture—Continued

Map symbol and soil name	Land capability	Alfalfa hay	Tall fescue-ladino
		Tons	AUM*
EtC2:			
Etowah	3e	3.00	7.50
EtD2:			
Etowah	4e	2.50	7.00
Gu:			
Guthrie	5w	---	4.00
HaC2:			
Hampshire	3e	2.50	7.00
HaD2:			
Hampshire	4e	2.00	6.50
HwC:			
Hawthorne	4s	---	4.00
HwF:			
Hawthorne	7s	---	---
IrB:			
Ironcity	2e	---	7.50
IrC:			
Ironcity	3e	2.00	7.00
Ln:			
Lindell	2w	---	8.00
MmC2:			
Mimosa	4e	---	4.00
MmD2:			
Mimosa	6e	---	3.00
MmE2:			
Mimosa	7e	---	2.50
MnC:			
Mimosa-Rock outcrop	6s	---	3.50
MnE:			
Mimosa-Rock outcrop	7s	---	3.00
MoB:			
Mountview	2e	3.00	8.00
MoC:			
Mountview	3e	2.50	7.50
NeB:			
Nesbitt	2e	---	7.50
Pq.			
Pits, quarry			

See footnote at end of table.

Table 6.—Land Capability and Yields per Acre of Pasture—Continued

Map symbol and soil name	Land capability	Alfalfa hay	Tall fescue-ladino
		Tons	AUM*
SeC:			
Sengtown	3e	2.50	7.50
SeD:			
Sengtown	4e	2.00	7.00
ShB:			
Sequatchie	2e	3.50	8.00
Ta:			
Taft	3w	---	6.50
Tu:			
Tupelo	3w	---	6.00
Ur.			
Urban land			
W.			
Water			

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one sheep, or five goats) for 30 days.

Table 7.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland)

Map symbol	Soil name
AmB	Armour silt loam, 2 to 5 percent slopes
BwB	Bewleyville silt loam, 2 to 5 percent slopes
CpB	Capshaw silt loam, 2 to 5 percent slopes
DfB2	Dewey silt loam, 2 to 5 percent slopes, eroded
DkB	Dickson silt loam, 2 to 5 percent slopes
En	Ennis gravelly silt loam, occasionally flooded
EtB	Etowah silt loam, 2 to 5 percent slopes
IrB	Ironcity gravelly silt loam, 2 to 5 percent slopes
Ln	Lindell silt loam, occasionally flooded
MoB	Mountview silt loam, 2 to 5 percent slopes
NeB	Nesbitt silt loam, 2 to 5 percent slopes
ShB	Sequatchie loam, 2 to 5 percent slopes

Table 8.—Woodland Management and Productivity

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Ag:									
Agee	Slight	Moderate	Moderate	Moderate	Severe	sweetgum	95	93	sweetgum, American
						American sycamore	90	85	sycamore, water
						water oak	90	62	oak, cherrybark
						cherrybark oak	90	62	oak
AmB:									
Armour	Slight	Slight	Slight	Slight	Moderate	yellow-poplar	100	107	yellow-poplar,
						loblolly pine	90	144	loblolly pine,
						black walnut	85	75	black walnut,
						white oak	80	62	white oak,
						southern red oak	80	62	southern red oak
Ar:									
Arrington	Slight	Moderate	Moderate	Slight	Severe	yellow-poplar	100	107	yellow-poplar,
						black walnut	85	75	black walnut,
						sweetgum	85	70	sweetgum, white
						white oak	80	62	oak, cherrybark
						cherrybark oak	80	62	oak
BaC:									
Barfield	Slight	Slight	Moderate	Severe	Moderate	Virginia pine	55	43	Virginia pine,
						eastern redcedar	40	41	eastern redcedar
Ashwood	Slight	Slight	Slight	Slight	Moderate	Virginia pine	55	43	Virginia pine,
						eastern redcedar	40	41	eastern redcedar
Rock outcrop.									
BaE:									
Barfield	Moderate	Moderate	Moderate	Severe	Moderate	Virginia pine	55	43	Virginia pine,
						eastern redcedar	40	41	eastern redcedar
Ashwood	Slight	Slight	Slight	Slight	Moderate	Virginia pine	55	43	Virginia pine,
						eastern redcedar	40	41	eastern redcedar
Rock outcrop.									
BwB:									
Bewleyville	Slight	Slight	Slight	Slight	Moderate	loblolly pine	95	113	loblolly pine,
						yellow-poplar	75	90	yellow-poplar,
						southern red oak	70	57	southern red oak,
						white oak	70	52	white oak

Table 8.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
BwC:									
Bewleyville	Moderate	Slight	Slight	Slight	Moderate	loblolly pine	95	113	loblolly pine,
						yellow-poplar	75	90	yellow-poplar,
						southern red oak	70	57	southern red oak,
						white oak	70	52	white oak
CpB:									
Capshaw	Slight	Slight	Slight	Slight	Moderate	sweetgum	95	81	sweetgum, yellow-
						yellow-poplar	90	86	poplar, green ash,
						green ash	90	86	swamp white oak,
						swamp white oak	70	57	cherrybark oak
						cherrybark oak	70	57	
DeD, DeE:									
Dellrose	Moderate	Moderate	Moderate	Slight	Moderate	yellow-poplar	100	100	yellow-poplar,
						loblolly pine	80	114	loblolly pine,
						southern red oak	75	57	southern red oak,
						black walnut	75	75	black walnut
DfB2:									
Dewey	Slight	Slight	Slight	Slight	Moderate	loblolly pine	95	113	yellow-poplar,
						yellow-poplar	75	90	loblolly pine,
						southern red oak	70	57	southern red oak,
						white oak	70	52	white oak
DkB, DkC2:									
Dickson	Slight	Slight	Slight	Moderate	Moderate	yellow-poplar	90	90	yellow-poplar,
						southern red oak	75	57	southern red oak,
						white oak	70	57	white oak,
						cherrybark oak	70	57	cherrybark oak
Eg:									
Egam	Slight	Moderate	Moderate	Slight	Severe	sweetgum	90	70	sweetgum, yellow-
						yellow-poplar	95	98	poplar, swamp
						swamp white oak	85	57	white oak,
						cherrybark oak	85	57	cherrybark oak
En:									
Ennis	Slight	Slight	Moderate	Slight	Severe	yellow-poplar	100	107	yellow-poplar,
						sweetgum	85	85	sweetgum, American
						American sycamore	85	80	sycamore,
						cherrybark oak	80	62	cherrybark oak,
						white oak	70	57	white oak

Table 8.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
EtB, EtC2:									
Etowah	Slight	Slight	Slight	Slight	Moderate	cherrybark oak	80	62	cherrybark oak,
						loblolly pine	80	129	loblolly pine,
						southern red oak	80	57	southern red oak,
						yellow-poplar	90	86	yellow-poplar
EtD2:									
Etowah	Moderate	Moderate	Slight	Slight	Moderate	cherrybark oak	80	62	cherrybark oak,
						loblolly pine	80	129	loblolly pine,
						southern red oak	80	57	southern red oak,
						yellow-poplar	90	86	yellow-poplar
Gu:									
Guthrie	Slight	Severe	Severe	Severe	Severe	sweetgum	90	98	sweetgum, swamp
						swamp white oak	80	43	white oak, willow
						willow oak	85	43	oak, American
						American sycamore	76	43	sycamore
HaC2:									
Hampshire	Moderate	Slight	Slight	Slight	Moderate	loblolly pine	80	114	loblolly pine,
						southern red oak	70	57	southern red oak,
						eastern redcedar	50	57	eastern redcedar
HaD2:									
Hampshire	Moderate	Moderate	Moderate	Moderate	Moderate	loblolly pine	80	114	loblolly pine,
						southern red oak	70	57	southern red oak,
						eastern redcedar	50	57	eastern redcedar
HwC:									
Hawthorne	Slight	Moderate	Moderate	Slight	Moderate	eastern redcedar	40	35	eastern redcedar,
						Virginia pine	60	75	Virginia pine
HwF:									
Hawthorne	Moderate	Severe	Moderate	Moderate	Moderate	eastern redcedar	40	35	eastern redcedar,
						Virginia pine	60	75	Virginia pine
IrB, IrC:									
Ironcity	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	123	loblolly pine,
						Virginia pine	70	92	Virginia pine,
						chestnut oak	70	57	chestnut oak,
						southern red oak	70	52	southern red oak

Table 8.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Ln:									
Lindell	Slight	Slight	Moderate	Slight	Severe	yellow-poplar	95	98	yellow-poplar,
						sweetgum	85	70	sweetgum, white
						white oak	85	62	oak, cherrybark
						cherrybark oak	80	62	oak, black walnut
						black walnut	85	55	
MmC2:									
Mimosa	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	114	loblolly pine,
						chestnut oak	70	57	chestnut oak,
						eastern redcedar	50	45	eastern redcedar
MmD2, MmE2:									
Mimosa	Moderate	Moderate	Severe	Slight	Moderate	loblolly pine	80	114	loblolly pine,
						chestnut oak	70	57	chestnut oak,
						eastern redcedar	50	45	eastern redcedar
MnC:									
Mimosa	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	114	loblolly pine,
						chestnut oak	70	57	chestnut oak,
						eastern redcedar	50	45	eastern redcedar
Rock outcrop.									
MnE:									
Mimosa	Moderate	Moderate	Moderate	Slight	Moderate	loblolly pine	80	114	loblolly pine,
						chestnut oak	70	57	chestnut oak,
						eastern redcedar	50	45	eastern redcedar
Rock outcrop.									
MoB:									
Mountview	Slight	Slight	Slight	Slight	Moderate	loblolly pine	95	113	loblolly pine,
						yellow-poplar	75	90	yellow-poplar,
						southern red oak	70	57	southern red oak,
						white oak	70	52	white oak
MoC:									
Mountview	Moderate	Slight	Slight	Slight	Moderate	loblolly pine	95	113	loblolly pine,
						yellow-poplar	75	90	yellow-poplar,
						southern red oak	70	57	southern red oak,
						white oak	70	52	white oak

Table 8.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
NeB:									
Nesbitt	Slight	Slight	Slight	Slight	Moderate	yellow-poplar	95	98	yellow-poplar,
						sweetgum	85	70	sweetgum, white
						white oak	85	62	oak, cherrybark
						cherrybark oak	80	62	oak, black walnut
						black walnut	85	55	
Pq.									
Pits, quarry									
SeC:									
Sengtown	Slight	Slight	Slight	Slight	Moderate	loblolly pine	70	114	loblolly pine,
						southern red oak	70	57	southern red oak,
						yellow-poplar	90	86	yellow-poplar
SeD:									
Sengtown	Moderate	Moderate	Slight	Slight	Moderate	loblolly pine	70	114	loblolly pine,
						southern red oak	70	57	southern red oak,
						yellow-poplar	90	86	yellow-poplar
ShB:									
Sequatchie	Slight	Slight	Slight	Slight	Slight	cherrybark oak	80	62	cherrybark oak,
						loblolly pine	90	144	loblolly pine,
						yellow-poplar	100	95	yellow-poplar
Ta:									
Taft	Slight	Moderate	Moderate	Moderate	Severe	yellow-poplar	95	98	yellow-poplar,
						sweetgum	95	93	sweetgum, swamp
						swamp white oak	85	63	white oak,
						American sycamore	80	57	American sycamore
Tu:									
Tupelo	Slight	Moderate	Moderate	Slight	Severe	sweetgum	95	98	sweetgum, yellow-
						yellow-poplar	90	93	poplar, swamp
						swamp white oak	85	63	white oak,
						American sycamore	80	75	American sycamore
Ur.									
Urban land									
W.									
Water									

Table 9.—Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. 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	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ag:					
Agee	Severe: flooding, percs slowly, wetness	Severe: percs slowly, wetness	Severe: percs slowly, wetness	Severe: wetness	Severe: wetness
AmB:					
Armour	Slight	Slight	Moderate: slope	Slight	Slight
Ar:					
Arrington	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding
BaC:					
Barfield	Severe: too clayey, depth to rock	Severe: too clayey, depth to rock	Severe: slope, depth to rock	Severe: too clayey	Severe: too clayey, depth to rock
Ashwood	Moderate: percs slowly, slope	Moderate: percs slowly, slope	Severe: slope	Slight	Moderate: slope, depth to rock
Rock outcrop.					
BaE:					
Barfield	Severe: slope	Severe: slope	Severe: slope, depth to rock	Severe: too clayey	Severe: slope
Ashwood	Moderate: percs slowly, slope	Moderate: percs slowly, slope	Severe: slope	Slight	Moderate: slope, depth to rock
Rock outcrop.					
BwB:					
Bewleyville	Slight	Slight	Moderate: slope	Slight	Slight
BwC:					
Bewleyville	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
CpB:					
Capshaw	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly, slope	Slight	Slight
DeD:					
Dellrose	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
DeE:					
Dellrose	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope

Table 9.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DfB2:					
Dewey	Slight	Slight	Moderate: slope small stones	Slight	Slight
DkB:					
Dickson	Moderate: percs slowly wetness	Moderate: percs slowly wetness	Moderate: percs slowly slope wetness	Severe: erodes easily	Slight
DkC2:					
Dickson	Moderate: percs slowly slope wetness	Moderate: percs slowly slope wetness	Severe: slope	Severe: erodes easily	Moderate: slope
Eg:					
Egam	Severe: flooding	Moderate: percs slowly	Moderate: flooding slope	Slight	Moderate: flooding
En:					
Ennis	Severe: flooding	Moderate: small stones	Severe: small stones	Slight	Moderate: flooding small stones droughty
EtB:					
Etowah	Slight	Slight	Moderate: slope small stones	Slight	Slight
EtC2:					
Etowah	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
EtD2:					
Etowah	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Gu:					
Guthrie	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding
HaC2:					
Hampshire	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Severe: erodes easily	Moderate: slope
HaD2:					
Hampshire	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
HwC:					
Hawthorne	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: large stones slope small stones
HwF:					
Hawthorne	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope

Table 9.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
IrB:					
Ironcity	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: large stones small stones
IrC:					
Ironcity	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: large stones slope small stones
Ln:					
Lindell	Severe: flooding	Moderate: wetness	Moderate: small stones wetness	Slight	Moderate: flooding
MmC2:					
Mimosa	Moderate: percs slowly	Moderate: percs slowly	Severe: slope	Slight	Slight
MmD2:					
Mimosa	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
MmE2:					
Mimosa	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey
MnC:					
Mimosa	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope
Rock outcrop.					
MnE:					
Mimosa	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey	Severe: slope too clayey
Rock outcrop.					
MoB:					
Mountview	Slight	Slight	Moderate: slope	Severe: erodes easily	Slight
MoC:					
Mountview	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
NeB:					
Nesbitt	Moderate: percs slowly wetness	Moderate: percs slowly wetness	Moderate: percs slowly slope wetness	Slight	Slight
Pq.					
Pits, quarry					
SeC:					
Sengtown	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: slope small stones

Table 9.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SeD:					
Sengtown	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
ShB:					
Sequatchie	Slight	Slight	Moderate: slope small stones	Slight	Moderate: flooding large stones
Ta:					
Taft	Severe: wetness	Moderate: percs slowly wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
Tu:					
Tupelo	Severe: wetness	Moderate: percs slowly wetness	Severe: wetness	Moderate: wetness	Severe: flooding
Ur.					
Urban land					
W.					
Water					

Table 10.—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
Ag:										
Agee	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good
AmB:										
Armour	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ar:										
Arrington	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
BaC, BaE:										
Barfield	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Ashwood	Fair	Good	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
BwB:										
Bewleyville	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BwC:										
Bewleyville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CpB:										
Capshaw	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
DeD:										
Dellrose	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeE:										
Dellrose	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DfB2:										
Dewey	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
DkB:										
Dickson	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
DkC2:										
Dickson	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Eg:										
Egam	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor

Table 10.—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
En:										
Ennis	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
EtB:										
Etowah	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EtC2:										
Etowah	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EtD2:										
Etowah	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Gu:										
Guthrie	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Good	Very poor	Very poor	Good
HaC2:										
Hampshire	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
HaD2:										
Hampshire	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
HwC:										
Hawthorne	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
HwF:										
Hawthorne	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
IrB, IrC:										
Ironcity	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ln:										
Lindell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
MmC2:										
Mimosa	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MmD2:										
Mimosa	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MmE2:										
Mimosa	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MnC:										
Mimosa	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Rock outcrop.										

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life
MnE:										
Mimosa	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
MoB:										
Mountview	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
MoC:										
Mountview	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
NeB:										
Nesbitt	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Pq.										
Pits, quarry										
SeC:										
Sengtown	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SeD:										
Sengtown	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ShB:										
Sequatchie	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ta:										
Taft	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
Tu:										
Tupelo	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
Ur.										
Urban land										
W.										
Water										

Table 11.—Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. 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	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ag:						
Agee	Severe: wetness	Severe: flooding shrink-swell wetness	Severe: flooding shrink-swell wetness	Severe: flooding shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: wetness
AmB:						
Armour	Slight	Slight	Slight	Moderate: slope	Severe: low strength	Slight
Ar:						
Arrington	Moderate: flooding wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
BaC:						
Barfield	Severe: depth to rock	Severe: shrink-swell depth to rock	Severe: shrink-swell depth to rock	Severe: shrink-swell slope depth to rock	Severe: low strength shrink-swell depth to rock	Severe: too clayey depth to rock
Ashwood	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope depth to rock
Rock outcrop.						
BaE:						
Barfield	Severe: slope depth to rock	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope depth to rock	Severe: shrink-swell slope depth to rock	Severe: low strength shrink-swell depth to rock	Severe: slope
Ashwood	Severe: depth to rock	Severe: shrink-swell	Severe: shrink-swell depth to rock	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope depth to rock
Rock outcrop.						
BwB:						
Bewleyville	Moderate: too clayey	Slight	Moderate: shrink-swell	Slight	Severe: low strength	Slight

Table 11.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BwC:						
Bewleyville	Moderate: slope, too clayey	Moderate: slope	Moderate: shrink-swell, slope	Severe: slope	Severe: low strength	Moderate: slope
CpB:						
Capshaw	Moderate: too clayey, wetness, depth to rock	Moderate: shrink-swell	Moderate: shrink-swell, wetness, depth to rock	Moderate: shrink-swell	Severe: low strength	Slight
DeD, DeE:						
Dellrose	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DfB2:						
Dewey	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: low strength, shrink-swell	Slight
DkB:						
Dickson	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: low strength	Slight
DkC2:						
Dickson	Severe: wetness	Moderate: slope, wetness	Severe: wetness	Severe: slope	Severe: low strength	Moderate: slope
Eg:						
Egam	Moderate: flooding, too clayey, wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding, low strength	Moderate: flooding
En:						
Ennis	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, small stones, droughty
EtB:						
Etowah	Moderate: too clayey	Slight	Slight	Slight	Moderate: low strength	Slight

Table 11.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EtC2:						
Etowah	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
EtD2:						
Etowah	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Gu:						
Guthrie	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: low strength ponding	Severe: ponding
HaC2:						
Hampshire	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
HaD2:						
Hampshire	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
HwC:						
Hawthorne	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: large stones slope small stones
HwF:						
Hawthorne	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
IrB:						
Ironcity	Moderate: too clayey	Slight	Slight	Moderate: slope	Moderate: low strength	Moderate: large stones small stones
IrC:						
Ironcity	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: large stones slope small stones

Table 11.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ln:						
Lindell	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding
MmC2:						
Mimosa	Moderate: too clayey depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell slope	Severe: low strength	Slight
MmD2:						
Mimosa	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
MmE2:						
Mimosa	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope too clayey
MnC:						
Mimosa	Moderate: slope too clayey depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Severe: low strength	Moderate: slope
Rock outcrop.						
MnE:						
Mimosa	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope too clayey
Rock outcrop.						
MoB:						
Mountview	Moderate: too clayey	Slight	Moderate: shrink-swell	Slight	Severe: low strength	Slight
MoC:						
Mountview	Moderate: slope too clayey	Moderate: slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
NeB:						
Nesbitt	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness	Severe: low strength	Slight

Table 11.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pq. Pits, quarry						
SeC: Sengtown	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope small stones
SeD: Sengtown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
ShB: Sequatchie	Moderate: flooding	Slight	Slight	Slight	Severe: flooding	Moderate: flooding large stones
Ta: Taft	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength	Moderate: wetness
Tu: Tupelo	Severe: wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: flooding low strength shrink-swell	Severe: flooding
Ur. Urban land						
W. Water						

Table 12.—Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. 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	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ag:					
Agee	Severe: percs slowly wetness	Slight	Severe: too clayey wetness	Severe: wetness	Poor: hard to pack too clayey wetness
AmB:					
Armour	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: thin layer too clayey
Ar:					
Arrington	Severe: flooding	Severe: flooding	Severe: flooding wetness	Severe: flooding	Good
BaC:					
Barfield	Severe: depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Ashwood	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop.					
BaE:					
Barfield	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Ashwood	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop.					
BwB:					
Bewleyville	Moderate: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: hard to pack too clayey
BwC:					
Bewleyville	Moderate: percs slowly slope	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack too clayey
CpB:					
Capshaw	Severe: percs slowly wetness	Moderate: slope depth to rock	Severe: too clayey wetness depth to rock	Moderate: wetness depth to rock	Poor: hard to pack too clayey

Table 12.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DeD, DeE:					
Dellrose	Severe: slope	Severe: seepage slope	Severe: slope	Severe: seepage slope	Poor: slope small stones
DfB2:					
Dewey	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
DkB:					
Dickson	Severe: percs slowly wetness	Severe: wetness	Moderate: too clayey wetness	Moderate: wetness	Fair: too clayey wetness
DkC2:					
Dickson	Severe: percs slowly wetness	Severe: slope wetness	Moderate: slope too clayey wetness	Moderate: slope wetness	Fair: slope too clayey wetness
Eg:					
Egam	Severe: flooding percs slowly wetness	Severe: flooding wetness	Severe: flooding too clayey wetness	Severe: flooding wetness	Poor: hard to pack too clayey
En:					
Ennis	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage	Severe: flooding seepage	Fair: small stones
EtB:					
Etowah	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
EtC2:					
Etowah	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: too clayey
EtD2:					
Etowah	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Gu:					
Guthrie	Severe: percs slowly ponding	Severe: ponding	Severe: ponding	Severe: ponding	Poor: ponding
HaC2:					
Hampshire	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: slope depth to rock	Poor: hard to pack too clayey
HaD2:					
Hampshire	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey depth to rock	Severe: slope	Poor: hard to pack slope too clayey

Table 12.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
HwC:					
Hawthorne	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: seepage depth to rock	Severe: seepage depth to rock	Poor: small stones depth to rock
HwF:					
Hawthorne	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
IrB:					
Ironcity	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Poor: small stones
IrC:					
Ironcity	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Poor: small stones
Ln:					
Lindell	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: small stones too clayey wetness
MmC2:					
Mimosa	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: depth to rock	Poor: hard to pack too clayey
MmD2, MmE2:					
Mimosa	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey depth to rock	Severe: slope	Poor: hard to pack slope too clayey
MnC:					
Mimosa	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: slope depth to rock	Poor: hard to pack too clayey
Rock outcrop.					
MnE:					
Mimosa	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey depth to rock	Severe: slope	Poor: hard to pack slope too clayey
Rock outcrop.					
MoB:					
Mountview	Moderate: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: hard to pack small stones too clayey

Table 12.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MoC:					
Mountview	Moderate: percs slowly slope	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack small stones too clayey
NeB:					
Nesbitt	Severe: percs slowly wetness	Severe: wetness	Moderate: too clayey wetness	Moderate: wetness	Fair: too clayey wetness
Pq.					
Pits, quarry					
SeC:					
Sengtown	Moderate: percs slowly slope	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack small stones too clayey
SeD:					
Sengtown	Severe: slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack small stones too clayey
ShB:					
Sequatchie	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage	Severe: flooding	Fair: small stones too clayey
Ta:					
Taft	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Severe: wetness	Poor: wetness
Tu:					
Tupelo	Severe: flooding percs slowly wetness	Slight	Severe: flooding too clayey wetness	Severe: flooding wetness	Poor: hard to pack too clayey wetness
Ur.					
Urban land					
W.					
Water					

Table 13.—Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. 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	Roadfill	Sand	Gravel	Topsoil
Ag:				
Agee	Poor: low strength, shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
AmB:				
Armour	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones, too clayey
Ar:				
Arrington	Fair: low strength, thin layer	Improbable: excess fines	Improbable: excess fines	Good
BaC, BaE:				
Barfield	Poor: low strength, shrink-swell, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey, depth to rock
Ashwood	Poor: low strength, shrink-swell, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Rock outcrop.				
BwB:				
Bewleyville	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: thin layer, too clayey
BwC:				
Bewleyville	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope, thin layer, too clayey
CpB:				
Capshaw	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DeD:				
Dellrose	Fair: slope, thin layer	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
DeE:				
Dellrose	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones

Table 13.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
DfB2:				
Dewey	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DkB, DkC2:				
Dickson	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, small stones
Eg:				
Egam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: thin layer
En:				
Ennis	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
EtB:				
Etowah	Fair: low strength, thin layer	Improbable: excess fines	Improbable: excess fines	Fair: small stones, too clayey
EtC2:				
Etowah	Fair: low strength, thin layer	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones, too clayey
EtD2:				
Etowah	Fair: low strength, slope, thin layer	Improbable: excess fines	Improbable: excess fines	Poor: slope
Gu:				
Guthrie	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
HaC2:				
Hampshire	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, too clayey
HaD2:				
Hampshire	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, too clayey
HwC:				
Hawthorne	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
HwF:				
Hawthorne	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
IrB:				
Ironcity	Fair: low strength, thin layer	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones

Table 13.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
IrC:				
Ironcity	Fair: low strength, thin layer	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
Ln:				
Lindell	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
MmC2:				
Mimosa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
MmD2:				
Mimosa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
MmE2:				
Mimosa	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
MnC:				
Mimosa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Rock outcrop.				
MnE:				
Mimosa	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
Rock outcrop.				
MoB, MoC:				
Mountview	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
NeB:				
Nesbitt	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Pq.				
Pits, quarry				
SeC, SeD:				
Sengtown	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, too clayey
ShB:				
Sequatchie	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Ta:				
Taft	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer

Table 13.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Tu: Tupelo	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Ur. Urban land				
W. Water				

Table 14.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. 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	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ag:							
Agee	Slight	Severe: hard to pack wetness	Severe: no water	Limitation: percs slowly	Limitation: percs slowly wetness	Limitation: percs slowly wetness	Limitation: percs slowly wetness
AmB:							
Armour	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
Ar:							
Arrington	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily
BaC, BaE:							
Barfield	Severe: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope slow intake droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Ashwood	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Rock outcrop.							
BwB:							
Bewleyville	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
BwC:							
Bewleyville	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope

Table 14.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
CpB:							
Capshaw	Moderate: slope depth to rock	Severe: hard to pack	Severe: slow refill	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
DeD, DeE:							
Dellrose	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DfB2:							
Dewey	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
DkB:							
Dickson	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: percs slowly slope	Limitation: percs slowly rooting depth wetness	Limitation: erodes easily wetness	Limitation: erodes easily rooting depth
DkC2:							
Dickson	Severe: slope	Severe: piping	Severe: no water	Limitation: percs slowly slope	Limitation: percs slowly rooting depth wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily rooting depth slope
Eg:							
Egam	Slight	Moderate: hard to pack thin layer wetness	Severe: slow refill	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
En:							
Ennis	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: flooding droughty	Favorable	Favorable
EtB:							
Etowah	Moderate: seepage slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily

Table 14.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
EtC2, EtD2:							
Etowah	Severe: slope	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Gu:							
Guthrie	Slight	Severe: piping ponding	Severe: no water	Limitation: percs slowly ponding	Limitation: percs slowly rooting depth ponding	Limitation: erodes easily rooting depth ponding	Limitation: erodes easily rooting depth wetness
HaC2, HaD2:							
Hampshire	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
HwC, HwF:							
Hawthorne	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
IrB:							
Ironcity	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
IrC:							
Ironcity	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Ln:							
Lindell	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
MmC2:							
Mimosa	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly

Table 14.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
MmD2:							
Mimosa	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope
MmE2:							
Mimosa	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly slope	Limitation: percs slowly slope
MnC:							
Mimosa	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope
Rock outcrop.							
MnE:							
Mimosa	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly slope	Limitation: percs slowly slope
Rock outcrop.							
MoB:							
Mountview	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
MoC:							
Mountview	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
NeB:							
Nesbitt	Moderate: seepage slope	Moderate: piping thin layer wetness	Severe: no water	Limitation: slope	Limitation: erodes easily slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily

Table 14.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Pq. Pits, quarry							
SeC, SeD: Sengtown	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
ShB: Sequatchie	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: flooding slope	Favorable	Favorable
Ta: Taft	Moderate: seepage	Severe: piping	Severe: no water	Limitation: percs slowly	Limitation: percs slowly rooting depth wetness	Limitation: erodes easily rooting depth wetness	Limitation: erodes easily rooting depth wetness
Tu: Tupelo	Slight	Severe: hard to pack wetness	Severe: slow refill	Limitation: flooding percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Ur. Urban land							
W. Water							

Table 15.—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	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ag:												
Agee	0-14	Silty clay loam	CH, CL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	35-55	20-35
	14-60	Clay, silty clay	CH	A-7	0	0	95-100	95-100	95-100	85-95	50-75	30-50
AmB:												
Armour	0-9	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	80-100	75-95	70-90	25-35	5-10
	9-60	Silty clay loam, silt loam	CL	A-4, A-6	0	0	90-100	80-100	75-95	70-95	30-40	8-18
Ar:												
Arrington	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	90-100	85-95	75-95	25-40	4-15
	10-51	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	75-95	25-40	4-15
	51-60	Silty clay loam, silt loam, clay loam	CL, MH, ML	A-4, A-6, A-7	0	0	85-100	75-100	65-95	55-95	28-55	8-25
BaC, BaE:												
Barfield	0-7	Silty clay	CH, CL, MH	A-6, A-7	0-5	0-10	90-100	85-95	80-90	75-85	35-65	12-35
	7-16	Clay, flaggy clay	CH, CL, MH	A-6, A-7	0-5	0-15	70-100	65-90	60-85	55-80	35-70	14-40
	16-18	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Ashwood	0-8	Silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0-15	95-100	90-100	85-100	70-95	25-49	6-22
	8-24	Clay, silty clay	CH, MH	A-7	0	0-15	95-100	90-100	85-100	75-95	51-75	20-40
	24-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.—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	
BwB:												
Bewleyville-----	0-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-100	20-30	2-7
	15-30	Silty clay loam, silt loam	CL	A-6, A-7	0	0	95-100	95-100	90-100	85-100	30-45	11-22
	30-65	Silty clay loam, clay loam, clay	CH, CL, MH, ML	A-6, A-7	---	0-5	75-100	75-100	70-95	60-95	35-65	12-32
BwC:												
Bewleyville-----	0-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-100	20-30	2-7
	17-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	95-100	95-100	90-100	85-100	30-45	11-22
	32-65	Silty clay loam, clay loam, clay	CH, CL, MH, ML	A-6, A-7	---	0-5	75-100	75-100	70-95	60-95	35-65	12-32
CpB:												
Capshaw---------	0-9	Silt loam	CL-ML, CL, ML	A-4	0	0	90-100	85-100	80-95	75-85	18-30	3-10
	9-17	Silty clay loam, silty clay, silt loam	ML, CL	A-6, A-7	0	0	90-100	85-100	80-95	75-85	30-45	11-20
	17-43	Clay, silty clay, silty clay loam	MH, CH, CL	A-7	0	0	90-100	85-100	80-95	75-90	41-68	18-36
	43-58	Clay, silty clay, silty clay loam	CH, CL, MH	A-7	0	0	90-100	85-100	80-95	75-90	41-68	18-36
	58-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
DeD:												
Dellrose--------	0-7	Gravelly silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-10	55-90	55-85	45-75	40-70	20-35	5-15
	7-42	Gravelly silty clay loam, gravelly silt loam	SC, CL, GC, ML	A-4, A-6, A-7	0	0-15	60-90	55-90	50-75	40-70	30-45	8-18
	42-65	Clay	CH, MH	A-7	0	0-10	80-100	80-100	75-90	70-85	50-70	20-35

Table 15.—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	
DeE:												
Dellrose	0-5	Gravelly silt loam	CL, SC, GC, CL-ML	A-6, A-4	0	0-10	55-90	55-85	45-75	40-70	20-35	5-15
	5-38	Gravelly silty clay loam, gravelly silt loam	SC, ML, GC, CL	A-4, A-6, A-7	0	0-15	60-90	55-90	50-75	40-70	30-45	8-18
	38-65	Clay	MH, CH	A-7	0	0-10	80-100	80-100	75-90	70-85	50-70	20-35
DfB2:												
Dewey	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-100	75-95	65-80	24-30	5-11
	7-24	Stratified silty clay, silty clay loam, clay	CL	A-6	0	0	90-100	80-100	75-95	70-85	27-40	12-20
	24-40	Silty clay, clay	ML, CH, CL, MH	A-6, A-7	0	0-2	85-100	75-100	70-95	65-85	38-68	12-34
	40-65	Silty clay, clay, gravelly clay	MH, CL, ML, CH	A-6, A-7	0	0-5	65-100	60-100	55-95	50-85	38-68	12-34
DkB:												
Dickson	0-5	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	75-95	20-28	2-7
	5-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	85-95	25-38	5-17
	31-57	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-95	25-42	7-20
	57-60	Silty clay loam, clay, gravelly clay	ML, MH, CL, GC	A-6, A-7	0	0-20	70-100	60-100	55-100	45-95	35-65	12-30
DkC2:												
Dickson	0-2	Silt loam	ML, CL-ML	A-4	0	0	100	95-100	90-100	75-95	20-28	2-7
	2-28	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	95-100	85-95	25-38	5-17
	28-55	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-95	25-42	7-20
	55-60	Silty clay loam, clay, gravelly clay	ML, CL, GC, MH	A-6, A-7	0	0-20	70-100	60-100	55-100	45-95	35-65	12-30

Table 15.—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	
Eg:												
Egam	0-5	Silt loam, silty clay loam	CL-ML, CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	85-100	75-95	21-45	4-20
	5-37	Clay, silty clay, silty clay loam	CL, CH	A-6, A-7	0	0	95-100	95-100	90-100	85-95	38-60	15-30
	37-60	Silty clay loam, clay, clay loam	CH, CL, ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	70-95	25-60	8-30
En:												
Ennis	0-9	Gravelly silt loam	CL-ML, GM, ML, SM	A-4, A-6	0	0-5	55-85	50-85	40-80	35-70	15-30	NP-12
	9-60	Gravelly silt loam, gravelly loam, gravelly clay loam	GM, ML, SM, CL-ML	A-2, A-4, A-6	0	0-5	55-95	40-85	40-80	30-70	15-35	NP-15
EtB:												
Etowah	0-7	Silt loam	CL-ML, SC-SM, CL, ML	A-4	0	0	80-100	75-100	70-95	45-70	20-30	3-10
	7-52	Clay loam, silty clay loam, silt loam	CL	A-6	0	0	80-100	75-100	70-95	65-85	25-35	10-15
	52-65	Clay loam, clay, silty clay loam	ML, MH, CL	A-6, A-7	0	0	80-100	75-100	70-95	65-85	39-60	15-25
EtC2:												
Etowah	0-10	Silt loam	ML, CL, CL-ML, SC-SM	A-4	0	0	80-100	75-100	70-95	45-70	20-30	3-10
	10-52	Clay loam, silty clay loam, silt loam	CL	A-6	0	0	80-100	75-100	70-95	65-85	25-35	10-15
	52-65	Clay loam, silty clay loam, clay	CL, MH, ML	A-6, A-7	0	0	80-100	75-100	70-95	65-85	39-60	15-25

Table 15.—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	
EtD2:												
Etowah----------	0-3	Silt loam	SC-SM, ML, CL-ML, CL	A-4	0	0	80-100	75-100	70-95	45-70	20-30	3-10
	3-52	Clay loam, silty clay loam, silt loam	CL	A-6	0	0	80-100	75-100	70-95	65-85	25-35	10-15
	52-65	Clay loam, silty clay loam, clay	CL, ML, MH	A-6, A-7	0	0	80-100	75-100	70-95	65-85	39-60	15-25
Gu:												
Guthrie---------	0-7	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	85-95	18-28	2-7
	7-24	Silt loam, silty clay loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	85-95	23-39	5-15
	24-45	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	85-100	80-100	70-95	20-42	5-20
	45-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0-5	85-100	80-100	75-100	66-95	20-50	4-25
HaC2, HaD2:												
Hampshire-------	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	80-90	20-40	3-20
	5-45	Silty clay, silty clay loam, clay	CH, CL, MH	A-7	0	0-3	80-100	75-100	65-95	55-85	45-65	21-38
	45-60	Weathered bedrock, very channery clay loam, very channery silty clay loam	GM, SC, GC, CL	A-2, A-6, A-7	0-5	10-50	55-75	50-75	40-70	30-60	30-48	11-25
	60-62	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—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	
HwC, HwF:												
Hawthorne	0-17	Gravelly silt loam	GC-GM, ML, GM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	40-65	18-30	3-9
	17-34	Very gravelly silty clay loam, very channery silt loam	CL-ML, ML, GM, GC-GM	A-2, A-4, A-6	0-5	0-15	55-75	45-70	40-65	30-60	20-35	3-12
	34-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
IrB, IrC:												
Ironcity	0-9	Gravelly silt loam	CL-ML, ML, GC-GM, CL	A-4	0	0-10	60-90	55-80	45-70	45-70	25-35	4-10
	9-36	Gravelly silty clay loam, gravelly silt loam	SC-SM, GC, CL, CL-ML	A-4, A-6	0	0-15	60-90	55-80	55-80	45-80	25-40	5-20
	36-65	Very gravelly clay, gravelly silty clay, gravelly clay	CH, CL, GC, SC	A-7	0	0-20	50-90	40-75	35-70	35-70	45-70	20-40
Ln:												
Lindell	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	75-100	65-90	55-80	18-30	3-10
	6-60	Silty clay loam, gravelly clay loam, silt loam	CL, CL-ML	A-4, A-6	---	0-2	90-100	75-95	65-90	55-80	23-39	6-18
MmC2, MmD2:												
Mimosa	0-6	Silt loam	ML, CL	A-4, A-6, A-7	0	0	80-100	75-100	65-95	60-90	25-45	7-20
	6-58	Clay	MH, CH	A-7	0	0	95-100	90-100	85-95	80-95	51-65	25-35
	58-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
MmE2:												
Mimosa	0-3	Silt loam	CL, ML	A-4, A-6, A-7	0	0	80-100	75-100	65-95	60-90	25-45	7-20
	3-55	Clay, silty clay	CH, MH	A-7	0	0	95-100	90-100	85-95	80-95	51-65	25-35
	55-57	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—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	
MnC:												
Mimosa----------	0-6	Silt loam	ML, CL	A-4, A-6, A-7	0	0	80-100	75-100	65-95	60-90	25-45	7-20
	6-58	Clay	CH, MH	A-7	0	0	95-100	90-100	85-95	80-95	51-65	25-35
	58-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
MnE:												
Mimosa----------	0-3	Silt loam	CL, ML	A-4, A-6, A-7	0	0	80-100	75-100	65-95	60-90	25-45	7-20
	3-55	Clay, silty clay	MH, CH	A-7	0	0	95-100	90-100	85-95	80-95	51-65	25-35
	55-57	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
MoB, MoC:												
Mountview-------	0-8	Silt loam	ML, CL-ML	A-4	0	0	100	95-100	95-100	80-96	20-30	2-7
	8-20	Silt loam, silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	90-100	80-96	30-43	10-23
	20-65	Clay, gravelly clay, gravelly silty clay loam	CH, ML, MH, CL	A-6, A-7	---	0-20	75-100	65-100	60-98	50-96	35-65	11-32
NeB:												
Nesbitt---------	0-6	Silt loam	ML, CL-ML, CL	A-4	0	0	100	95-100	80-95	75-90	15-30	3-10
	6-17	Silt loam, silty clay loam	CL, ML	A-6, A-7	0	0	100	95-100	85-100	85-95	30-45	10-20
	17-48	Silty clay loam, silt loam	ML, CL	A-6, A-7	0	0	100	95-100	80-95	75-95	30-45	10-20
	48-65	Silty clay, clay	CL, CH, MH	A-7	0	0	95-100	80-100	75-95	70-90	45-65	20-34
Pq.												
Pits, quarry												

Table 15.—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	
SeC, SeD:												
Sengtown	0-9	Gravelly silt loam	GM, CL-ML, CL, ML	A-4	0-2	0-5	60-90	55-80	45-75	45-70	25-35	4-10
	9-18	Gravelly silty clay loam	CL, CL-ML, GC-GM	A-4, A-6	0-2	0-5	60-90	55-80	45-75	45-70	25-40	5-20
	18-65	Gravelly clay, gravelly silty clay	CH, CL, GC	A-7	0-2	0-5	50-90	40-75	40-70	40-70	45-70	20-40
ShB:												
Sequatchie	0-7	Loam	ML, CL-ML, CL, SM	A-2, A-4	---	0-10	85-100	75-100	65-95	30-70	15-27	2-10
	7-31	Sandy clay loam, loam, clay loam	CL-ML, CL	A-4, A-6	---	0-10	85-100	75-100	65-95	55-85	20-32	5-15
	31-60	Sandy loam, loam, fine sandy loam	SM, ML, CL-ML, CL	A-2, A-4	---	0-15	75-100	65-100	45-85	25-65	15-25	2-10
Ta:												
Taft	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	75-95	18-30	2-10
	8-34	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	95-100	85-95	23-38	5-16
	34-52	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	80-95	23-42	5-20
	52-60	Silty clay loam, clay, gravelly silty clay loam	ML, GC, CL	A-6, A-7	0	0-20	65-100	55-100	45-90	36-85	35-48	12-22
Tu:												
Tupelo	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	70-90	20-35	3-10
	8-16	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	95-100	90-100	85-95	30-55	11-29
	16-60	Clay, silty clay	CL, CH	A-7	0	0	95-100	95-100	90-100	85-100	41-70	20-42
Ur.												
Urban land												
W.												
Water												

Table 16.—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	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
Ag:										
Agee	0-14	27-40	1.30-1.50	0.20-0.60	0.17-0.21	6.0-8.9	2.0-4.0	.32	.32	5
	14-60	40-60	1.25-1.45	0.00-0.06	0.12-0.16	6.0-8.9	0.5-1.0	.32	.32	
AmB:										
Armour	0-9	15-27	1.30-1.45	0.60-2.00	0.18-0.23	0.0-2.9	1.0-3.0	.43	.43	5
	9-60	22-35	1.30-1.50	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37	
Ar:										
Arrington	0-10	18-35	1.30-1.45	0.60-2.00	0.19-0.22	0.0-2.9	2.0-4.0	.37	.37	5
	10-51	18-35	1.30-1.45	0.60-2.00	0.19-0.22	0.0-2.9	0.5-2.0	.37	.37	
	51-60	20-40	1.30-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.32	.32	
BaC, BaE:										
Barfield	0-7	35-55	1.30-1.50	0.20-0.60	0.10-0.15	3.0-5.9	2.0-4.0	.24	.24	1
	7-16	35-55	1.30-1.50	0.00-0.20	0.09-0.14	6.0-8.9	1.0-3.0	.17	.20	
	16-18	---	---	0.00-0.00	---	---	---	---	---	
Ashwood	0-8	22-40	1.20-1.40	0.60-2.00	0.14-0.18	3.0-5.9	2.0-5.0	.28	.32	2
	8-24	40-60	1.30-1.45	0.00-0.20	0.12-0.15	6.0-8.9	0.5-1.0	.24	.24	
	24-26	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.										
BwB:										
Bewleyville	0-15	15-27	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43	5
	15-30	22-35	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37	
	30-65	35-50	1.30-1.50	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.37	.32	
BwC:										
Bewleyville	0-17	15-27	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43	5
	17-32	22-35	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37	
	32-65	35-50	1.30-1.50	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.37	.32	
CpB:										
Capshaw	0-9	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	9-17	25-45	1.35-1.55	0.60-2.00	0.16-0.20	0.0-2.9	---	.37	.37	
	17-43	35-55	1.40-1.55	0.00-0.20	0.12-0.18	3.0-5.9	---	.24	.24	
	43-58	35-55	1.40-1.55	0.00-0.20	0.12-0.18	3.0-5.9	---	.24	.24	
	58-60	---	---	0.00-0.00	---	---	---	---	---	
DeD:										
Dellrose	0-7	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	5
	7-42	20-35	1.20-1.40	2.00-6.00	0.09-0.16	0.0-2.9	0.0-0.5	.24	.28	
	42-65	40-55	1.30-1.50	0.00-0.20	0.08-0.12	3.0-5.9	0.0-0.5	.24	.24	
DeE:										
Dellrose	0-5	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	5
	5-38	20-35	1.20-1.40	2.00-6.00	0.09-0.16	0.0-2.9	0.0-0.5	.24	.28	
	38-65	40-55	1.30-1.50	0.00-0.20	0.08-0.12	3.0-5.9	0.0-0.5	.24	.24	
DfB2:										
Dewey	0-7	17-27	1.35-1.50	0.60-2.00	0.18-0.20	0.0-2.9	1.0-2.0	.32	.32	5
	7-24	35-50	1.45-1.55	0.60-2.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	24-40	45-60	1.45-1.55	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24	
	40-65	45-60	1.45-1.55	0.60-2.00	0.08-0.17	3.0-5.9	0.0-0.5	.24	.24	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
DkB:										
Dickson	0-5	15-26	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.43	.43	4
	5-31	18-30	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	31-57	20-35	1.55-1.75	0.00-0.20	0.00-0.04	0.0-2.9	0.0-0.5	.43	.43	
	57-60	35-50	1.35-1.55	0.20-0.60	0.00-0.04	3.0-5.9	0.0-0.5	.28	.32	
DkC2:										
Dickson	0-2	15-26	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.43	.43	4
	2-28	18-30	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	28-55	20-35	1.55-1.75	0.00-0.20	0.00-0.04	0.0-2.9	0.0-0.5	.43	.43	
	55-60	35-50	1.35-1.55	0.20-0.60	0.00-0.04	3.0-5.9	0.0-0.5	.28	.32	
Eg:										
Egam	0-5	20-35	1.30-1.45	0.20-0.60	0.18-0.22	3.0-5.9	2.0-4.0	.32	.32	5
	5-37	35-50	1.30-1.45	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32	
	37-60	30-45	1.30-1.45	0.20-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.37	.37	
En:										
Ennis	0-9	12-25	1.30-1.45	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.28	.32	5
	9-60	18-32	1.35-1.50	2.00-6.00	0.08-0.15	0.0-2.9	---	.28	.32	
EtB:										
Etowah	0-7	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	7-52	23-35	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
	52-65	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
EtC2:										
Etowah	0-10	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	10-52	23-35	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
	52-65	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
EtD2:										
Etowah	0-3	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	3-52	23-35	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
	52-65	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
Gu:										
Guthrie	0-7	10-25	1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43	4
	7-24	18-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	24-45	18-32	1.60-1.75	0.00-0.20	0.00-0.04	0.0-2.9	0.0-0.5	.43	.43	
	45-60	18-35	1.60-1.75	0.00-0.20	0.00-0.04	0.0-2.9	0.0-0.5	.43	.43	
HaC2:										
Hampshire	0-5	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.43	.43	4
	5-45	35-50	1.25-1.45	0.20-0.60	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
	45-60	22-40	1.30-1.50	0.20-0.60	0.07-0.12	0.0-2.9	0.0-0.5	.24	.32	
	60-62	---	---	---	---	---	---	---	---	
HaD2:										
Hampshire	0-5	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.43	.43	3
	5-45	35-50	1.25-1.45	0.20-0.60	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
	45-60	22-40	1.30-1.50	0.20-0.60	0.07-0.12	0.0-2.9	0.0-0.5	.24	.32	
	60-62	---	---	---	---	---	---	---	---	
HwC, HwF:										
Hawthorne	0-17	12-25	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.20	.37	3
	17-34	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	34-60	---	---	0.00-0.20	---	---	---	---	---	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
IrB, IrC:										
Ironcity	0-9	12-25	1.20-1.40	0.60-2.00	0.14-0.18	0.0-2.9	0.5-2.0	.28	.37	5
	9-36	25-35	1.30-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.28	.32	
	36-65	35-50	1.35-1.65	0.20-2.00	0.08-0.13	3.0-5.9	0.0-0.5	.24	.32	
Ln:										
Lindell	0-6	20-32	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	6-60	20-35	1.35-1.50	0.60-2.00	0.14-0.17	0.0-2.9	0.5-1.0	.28	.28	
MmC2, MmD2:										
Mimosa	0-6	18-34	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	6-58	45-60	1.35-1.55	0.00-0.20	0.10-0.16	6.0-8.9	0.0-0.5	.24	.24	
	58-60	---	---	0.00-0.06	---	---	---	---	---	
MmE2:										
Mimosa	0-3	18-34	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-55	45-60	1.35-1.55	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.24	.24	
	55-57	---	---	---	---	---	---	---	---	
MnC:										
Mimosa	0-6	18-34	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	6-58	45-60	1.35-1.55	0.00-0.20	0.10-0.16	6.0-8.9	0.0-0.5	.24	.24	
	58-60	---	---	0.00-0.06	---	---	---	---	---	
Rock outcrop.										
MnE:										
Mimosa	0-3	18-34	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-55	45-60	1.35-1.55	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.24	.24	
	55-57	---	---	---	---	---	---	---	---	
Rock outcrop.										
MoB, MoC:										
Mountview	0-8	15-25	1.35-1.55	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.43	.43	5
	8-20	20-35	1.40-1.60	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.43	.43	
	20-65	35-55	1.30-1.50	0.20-2.00	0.10-0.15	3.0-5.9	0.0-0.5	.32	.37	
NeB:										
Nesbitt	0-6	15-30	1.35-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	5
	6-17	20-32	1.40-1.55	0.60-2.00	0.17-0.20	0.0-2.9	---	.37	.37	
	17-48	20-35	1.50-1.65	0.20-0.60	0.10-0.15	0.0-2.9	---	.37	.37	
	48-65	40-55	1.45-1.60	0.20-0.60	0.10-0.15	3.0-5.9	---	.24	.24	
Pq.										
Pits, quarry										
SeC, SeD:										
Sengtown	0-9	12-27	1.35-1.55	0.60-2.00	0.10-0.16	0.0-2.9	1.0-2.0	.28	.37	5
	9-18	28-40	1.35-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.32	
	18-65	40-60	1.35-1.60	0.60-2.00	0.08-0.12	3.0-5.9	0.0-0.5	.24	.28	
ShB:										
Sequatchie	0-7	10-25	1.50-1.65	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	5
	7-31	18-34	1.55-1.70	0.60-2.00	0.15-0.20	0.0-2.9	0.0-0.5	.24	.28	
	31-60	12-25	1.55-1.70	0.60-6.00	0.09-0.14	0.0-2.9	0.0-0.5	.24	.24	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
Ta:										
Taft	0-8	10-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43	4
	8-34	18-35	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	34-52	15-35	1.50-1.65	0.00-0.20	0.00-0.04	0.0-2.9	0.0-0.5	.43	.43	
	52-60	8-45	1.35-1.60	0.20-0.60	0.00-0.04	0.0-2.9	0.0-0.5	.37	.37	
Tu:										
Tupelo	0-8	18-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	5
	8-16	30-45	1.40-1.55	0.20-0.60	0.15-0.20	3.0-5.9	---	.32	.32	
	16-60	40-65	1.40-1.55	0.00-0.20	0.12-0.16	6.0-8.9	---	.28	.28	
Ur.										
Urban land										
W.										
Water										

Table 17.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction
	In	pH
Ag:		
Agee	0-14	5.6-7.8
	14-60	5.6-7.8
AmB:		
Armour	0-9	5.1-6.0
	9-60	5.1-6.0
Ar:		
Arrington	0-10	6.1-7.8
	10-51	6.1-7.8
	51-60	6.1-7.8
BaC, BaE:		
Barfield	0-7	6.1-7.8
	7-16	6.1-7.8
	16-18	---
Ashwood	0-8	5.6-7.8
	8-24	5.6-7.8
	24-26	---
Rock outcrop.		
BwB:		
Bewleyville	0-15	4.5-6.5
	15-30	4.5-6.0
	30-65	4.5-5.5
BwC:		
Bewleyville	0-17	4.5-6.5
	17-32	4.5-6.0
	32-65	4.5-5.5
CpB:		
Capshaw	0-9	5.1-6.0
	9-17	5.1-6.0
	17-43	5.1-6.0
	43-58	5.1-6.0
	58-60	---
DeD:		
Dellrose	0-7	4.5-6.0
	7-42	4.5-6.0
	42-65	4.5-6.0
DeE:		
Dellrose	0-5	4.5-6.0
	5-38	4.5-6.0
	38-65	4.5-6.0
DfB2:		
Dewey	0-7	4.5-5.5
	7-24	4.5-5.5
	24-40	4.5-5.5
	40-65	4.5-5.5

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction
	In	pH
DkB:		
Dickson	0-5	4.5-5.5
	5-31	4.5-5.5
	31-57	4.5-5.5
	57-60	4.5-5.5
DkC2:		
Dickson	0-2	4.5-5.5
	2-28	4.5-5.5
	28-55	4.5-5.5
	55-60	4.5-5.5
Eg:		
Egam	0-5	5.6-7.3
	5-37	5.6-7.3
	37-60	5.6-8.4
En:		
Ennis	0-9	4.5-6.0
	9-60	4.5-6.0
EtB:		
Etowah	0-7	4.5-5.5
	7-52	4.5-5.5
	52-65	4.5-5.5
EtC2:		
Etowah	0-10	4.5-5.5
	10-52	4.5-5.5
	52-65	4.5-5.5
EtD2:		
Etowah	0-3	4.5-5.5
	3-52	4.5-5.5
	52-65	4.5-5.5
Gu:		
Guthrie	0-7	3.6-5.5
	7-24	3.6-5.5
	24-45	3.6-5.5
	45-60	3.6-5.5
HaC2, HaD2:		
Hampshire	0-5	4.5-6.0
	5-45	4.5-6.0
	45-60	4.5-6.0
	60-62	---
HwC, HwF:		
Hawthorne	0-17	3.6-5.5
	17-34	3.6-5.5
	34-60	---
IrB, IrC:		
Ironcity	0-9	4.5-5.5
	9-36	4.5-5.5
	36-65	4.5-5.5

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction
	In	pH
Ln:		
Lindell	0-6	5.6-7.3
	6-60	5.6-7.3
MmC2, MmD2:		
Mimosa	0-6	4.5-6.0
	6-58	4.5-6.0
	58-60	---
MmE2:		
Mimosa	0-3	4.5-6.0
	3-55	4.5-6.0
	55-57	---
MnC:		
Mimosa	0-6	4.5-6.0
	6-58	4.5-6.0
	58-60	---
Rock outcrop.		
MnE:		
Mimosa	0-3	4.5-6.0
	3-55	4.5-6.0
	55-57	---
Rock outcrop.		
MoB, MoC:		
Mountview	0-8	4.5-5.5
	8-20	4.5-5.5
	20-65	4.5-5.5
NeB:		
Nesbitt	0-6	5.1-6.0
	6-17	5.1-6.0
	17-48	5.1-6.0
	48-65	5.1-6.0
Pq.		
Pits, quarry		
SeC, SeD:		
Sengtown	0-9	4.5-6.0
	9-18	4.5-6.0
	18-65	4.5-6.0
ShB:		
Sequatchie	0-7	4.5-5.5
	7-31	4.5-5.5
	31-60	4.5-5.5
Ta:		
Taft	0-8	4.5-5.5
	8-34	4.5-5.5
	34-52	4.5-5.5
	52-60	4.5-5.5

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction
	In	pH
Tu:		
Tupelo	0-8	5.1-6.5
	8-16	5.1-6.5
	16-60	5.1-6.5
Ur.		
Urban land		
W.		
Water		

Table 18.—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	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Ag:									
Agee	D								
		January	0.0-1.0	>6.0	---	---	None	---	Rare
		February	0.0-1.0	>6.0	---	---	None	---	Rare
		March	0.0-1.0	>6.0	---	---	None	---	Rare
		April	0.0-1.0	>6.0	---	---	None	---	Rare
		May	0.0-1.0	>6.0	---	---	None	---	Rare
		December	0.0-1.0	>6.0	---	---	None	---	Rare
AmB:									
Armour	B								
		Jan-Dec	---	---	---	---	None	---	None
Ar:									
Arrington	B								
		January	4.0-6.0	>6.0	---	---	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	Very brief	Occasional
		June	---	---	---	---	None	---	Rare
		July	---	---	---	---	None	---	Rare
		August	---	---	---	---	None	---	Rare
		September	---	---	---	---	None	---	Rare
		October	---	---	---	---	None	---	Rare
		November	---	---	---	---	None	---	Rare
		December	---	---	---	---	None	Brief	Frequent
BaC, BaE:									
Barfield	D								
		Jan-Dec	---	---	---	---	None	---	None
Ashwood	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
BwB, BwC:									
Bewleyville	B								
		Jan-Dec	---	---	---	---	None	---	None
CpB:									
Capshaw	C								
		January	1.5-2.0	>6.0	---	---	None	---	None
		February	1.5-2.0	>6.0	---	---	None	---	None
		March	1.5-2.0	>6.0	---	---	None	---	None
		April	1.5-2.0	>6.0	---	---	None	---	None
		December	1.5-2.0	>6.0	---	---	None	---	None
DeD, DeE:									
Dellrose	B								
		Jan-Dec	---	---	---	---	None	---	None
DfB2:									
Dewey	B								
		Jan-Dec	---	---	---	---	None	---	None
DkB, DkC2:									
Dickson	C								
		January	1.7-2.5	---	---	---	None	---	None
		February	1.7-2.5	---	---	---	None	---	None
		March	1.7-2.5	---	---	---	None	---	None
		April	1.7-2.5	---	---	---	None	---	None
		December	1.7-2.5	---	---	---	None	---	None
Eg:									
Egam	C								
		January	3.0-4.0	>6.0	---	---	None	Very brief	Frequent
		February	3.0-4.0	>6.0	---	---	None	Very brief	Frequent
		March	3.0-4.0	>6.0	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Occasional
		December	3.0-4.0	>6.0	---	---	None	Very brief	Frequent
En:									
Ennis	B								
		January	5.0-6.0	---	---	---	None	Very brief	Occasional
		February	5.0-6.0	---	---	---	None	Very brief	Occasional
		March	5.0-6.0	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	---	Rare
		December	5.0-6.0	---	---	---	None	Very brief	Occasional

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
EtB, EtC2, EtD2:									
Etowah	B								
		Jan-Dec	---	---	---	---	None	---	None
Gu:									
Guthrie	D								
		January	0.0	>6.0	1.1-3.0	Long	None	---	None
		February	0.0	>6.0	1.1-3.0	Long	None	---	None
		March	0.0	>6.0	1.1-3.0	Long	None	---	None
		April	0.0	>6.0	1.1-3.0	Long	None	---	None
		May	0.0	>6.0	1.1-3.0	Long	None	---	None
		December	0.0	>6.0	1.1-3.0	Long	None	---	None
HaC2, HaD2:									
Hampshire	C								
		Jan-Dec	---	---	---	---	None	---	None
HwC, HwF:									
Hawthorne	B								
		Jan-Dec	---	---	---	---	None	---	None
IrB, IrC:									
Ironcity	B								
		Jan-Dec	---	---	---	---	None	---	None
Ln:									
Lindell	C								
		January	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		February	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		March	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		April	1.5-2.0	>6.0	---	---	None	---	Rare
		May	---	---	---	---	None	---	Rare
		December	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
MmC2, MmD2, MmE2:									
Mimosa	C								
		Jan-Dec	---	---	---	---	None	---	None
MnC, MnE:									
Mimosa	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
MoB, MoC:									
Mountview	B								
		Jan-Dec	---	---	---	---	None	---	None
NeB:									
Nesbitt	B								
		January	1.5-2.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	1.5-2.5	>6.0	---	---	None	---	None
		April	1.5-2.5	>6.0	---	---	None	---	None
		December	1.5-2.5	>6.0	---	---	None	---	None
Pq.									
Pits, quarry									
SeC, SeD:									
Sengtown	B								
		Jan-Dec	---	---	---	---	None	---	None
ShB:									
Sequatchie	B								
		Jan-Dec	---	---	---	---	None	---	None
Ta:									
Taft	C								
		January	1.0-1.7	---	---	---	None	---	None
		February	1.0-1.7	---	---	---	None	---	None
		March	1.0-1.7	---	---	---	None	---	None
		April	1.0-1.7	---	---	---	None	---	None
		December	1.0-1.7	---	---	---	None	---	None
Tu:									
Tupelo	D								
		January	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		February	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		March	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		April	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		November	1.0-2.0	>6.0	---	---	None	---	None
		December	1.0-1.5	>6.0	---	---	None	Brief	Occasional
Ur.									
Urban land									
W.									
Water									

Table 19.—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				
Ag:							
Agee	---	---	---	---	None	High	Low
AmB:							
Armour	---	---	---	---	None	Moderate	Moderate
Ar:							
Arrington	---	---	---	---	None	Low	Low
BaC, BaE:							
Barfield	Bedrock (lithic)	8-20	---	Indurated	None	High	Low
Ashwood	Bedrock (lithic)	20-40	---	Indurated	None	High	Low
Rock outcrop.							
BwB, BwC:							
Bewleyville	---	---	---	---	None	Moderate	Moderate
CpB:							
Capshaw	Bedrock (lithic)	48-60	---	Indurated	None	High	Moderate
DeD, DeE:							
Dellrose	---	---	---	---	None	High	Moderate
DfB2:							
Dewey	---	---	---	---	None	High	Moderate
DkB:							
Dickson	Fragipan	20-36	---	Noncemented	None	Moderate	Moderate
DkC2:							
Dickson	Fragipan	20-30	---	Noncemented	None	Moderate	Moderate
Eg:							
Egam	---	---	---	---	None	High	Low
En:							
Ennis	---	---	---	---	None	Low	Moderate

Table 19.—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				
EtB, EtC2, EtD2:							
Etowah	---	---	---	---	None	Low	Moderate
Gu:							
Guthrie	Fragipan	24-36	---	Noncemented	None	High	High
HaC2, HaD2:							
Hampshire	Bedrock (paralithic) Bedrock (lithic)	40-60	---	Very strongly cemented Indurated	None	High	Moderate
HwC, HwF:							
Hawthorne	Bedrock (paralithic)	20-40	---	Very strongly cemented	None	Low	High
IrB, IrC:							
Ironcity	---	---	---	---	None	High	Moderate
Ln:							
Lindell	---	---	---	---	None	Moderate	Low
MmC2, MmD2, MmE2:							
Mimosa	Bedrock (lithic)	40-60	---	Indurated	None	High	Moderate
MnC, MnE:							
Mimosa	Bedrock (lithic)	40-60	---	---	None	High	Moderate
Rock outcrop.							
MoB, MoC:							
Mountview	---	---	---	---	None	Moderate	Moderate
NeB:							
Nesbitt	---	---	---	---	None	High	Moderate
Pq.							
Pits, quarry							
SeC, SeD:							
Sengtown	---	---	---	---	None	High	Moderate
ShB:							
Sequatchie	---	---	---	---	None	Low	Moderate

Table 19.—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				
Ta:							
Taft	Fragipan	20-36	---	Noncemented	None	High	High
Tu:							
Tupelo	---	---	---	---	None	High	Moderate
Ur.							
Urban land							
W.							
Water							

Table 20.—Classification of the Soils

Soil name	Family or higher taxonomic class
Agee	Fine, smectitic, thermic Vertic Epiaquolls
Armour	Fine-silty, mixed, active, thermic Ultic Hapludalfs
Arrington	Fine-silty, mixed, superactive, thermic Cumulic Hapludolls
Ashwood	Fine, mixed, superactive, thermic Vertic Argiudolls
Barfield	Clayey, mixed, active, thermic Lithic Hapludolls
Bewleyville	Fine-silty, siliceous, semiactive, thermic Typic Paleudults
Capshaw	Fine, mixed, semiactive, thermic Oxyaquic Hapludalfs
Dellrose	Fine-loamy, mixed, semiactive, thermic Typic Paleudults
Dewey	Fine, kaolinitic, thermic Typic Paleudults
Dickson	Fine-silty, siliceous, semiactive, thermic Glossic Fragiudults
Egam	Fine, mixed, active, thermic Cumulic Hapludolls
Ennis	Fine-loamy, siliceous, semiactive, thermic Fluventic Dystrochrepts
Etowah	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Guthrie	Fine-silty, siliceous, semiactive, thermic Typic Fragiaquults
Hampshire	Fine, mixed, active, thermic Ultic Hapludalfs
Hawthorne	Loamy-skeletal, siliceous, semiactive, thermic Typic Dystrudepts
Ironcity	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Lindell	Fine-loamy, mixed, active, thermic Fluvaquentic Eutrudepts
Mimosa	Fine, mixed, semiactive, thermic Typic Hapludalfs
Mountview	Fine-silty, siliceous, semiactive, thermic Oxyaquic Paleudults
Nesbitt	Fine-silty, siliceous, semiactive, thermic Aquic Paleudalfs
Sengtown	Fine, mixed, semiactive, thermic Typic Paleudalfs
Sequatchie	Fine-loamy, siliceous, semiactive, thermic Humic Hapludults
Taft	Fine-silty, siliceous, semiactive, thermic Glossaquic Fragiudults
Tupelo	Fine, mixed, semiactive, thermic Aquic Hapludalfs

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