USDA United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Tennessee Agricultural Experiment Station, Hardeman County Board of Commissioners, Tennessee Valley Authority, and Tennessee Department of Agriculture

Soil Survey of Hardeman County, Tennessee

How to Use This Soil Survey

General Soil Map

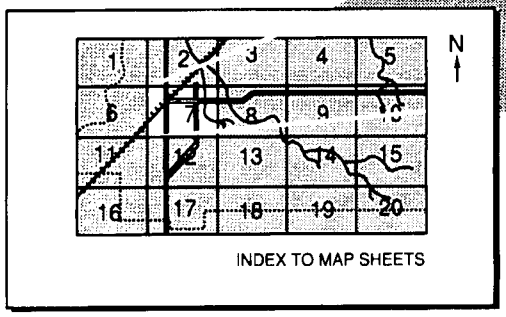
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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

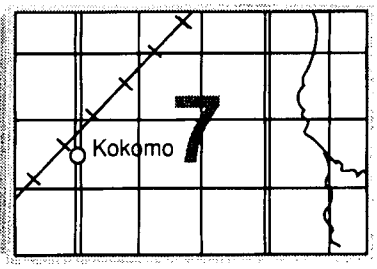
Detailed Soil Maps

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

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



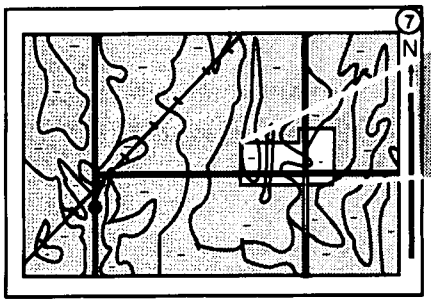
INDEX TO MAP SHEETS



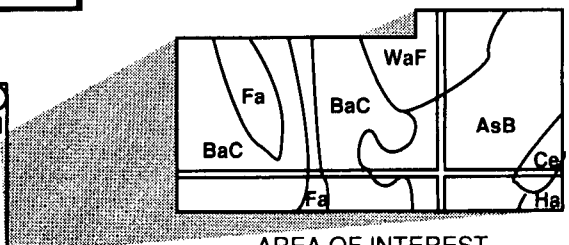
MAP SHEET

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

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



MAP SHEET



AREA OF INTEREST

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

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 1987. Soil names and descriptions were approved in 1988. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1987. This soil survey was made cooperatively by the Natural Resources Conservation Service and the Tennessee Agricultural Experiment Station, the Hardeman County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture. It is part of the technical assistance furnished to the Hardeman County Soil Conservation District.

Cover: Crimson clover used as a winter cover crop, in an area of Providence silt loam, 5 to 8 percent slopes, severely eroded. Most of the soils in Hardeman County require cover crops to reduce the hazard of erosion after harvest.

Contents

Issued November 1997

Summary of Tables

Foreword

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

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

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

Jerry S. Lee
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Hardeman County, Tennessee

By David W. Thomas, Natural Resources Conservation Service

Soils surveyed by David W. Thomas, Terry E. Henry, Howard G. Smith, Rodney J. Creel, Robert H. Fulwood, David W. Young, David C. McMillen, Micheal E. Gill, and Craig A. Ditzler, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Hardeman County Board of Commissioners, Tennessee Agricultural Experiment Station, Tennessee Valley Authority, and Tennessee Department of Agriculture

HARDEMAN COUNTY is in the southwestern part of Tennessee (fig. 1). It is bounded on the north by Madison and Haywood Counties, on the east by Chester and McNairy Counties, on the west by Fayette County, and on the south by Benton, Tippah, and Alcorn Counties in Mississippi. The county has a land area of 419,800 acres, or approximately 656 square miles.

Bolivar, the county seat, is the largest town in the county. It has a population of about 7,000. According to the U.S. Census, Hardeman County had a population of 23,377 in 1990.

Forestry and farming are two of the largest economic enterprises in the county. Both hardwood and coniferous forests cover about 60 percent of the county. In 1993, Hardeman County led the state in timber volume and lumber production. According to the 1994 Tennessee Agricultural Statistics, approximately 159,927 acres, or about 37 percent of the county, is used as farm land. The average farm size in the county is 350 acres. Soybeans and cotton are the leading cash crops. Other important crops include corn, grain sorghum, and small grain. The production of livestock, mainly beef cattle and swine, is increasing in importance. Dairies, fruit orchards, and truck crops are also important in the county (fig. 2).

General Nature of the County

This section gives general information about Hardeman County. It describes natural resources, history and development, physiography and drainage, geology, and climate.

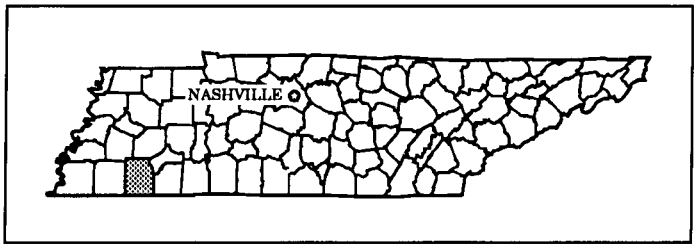


Figure 1.—Location of Hardeman County in Tennessee.

Natural Resources

Soil, water, and forest land are important natural resources in Hardeman County. Sand, which is used in the transportation and construction industries, is also important to the economy of the county. The soils that are well suited to cropland are on broad, undulating uplands in the western part of the county and along many of the flood plains and stream terraces. Throughout the county, the available water is adequate for domestic uses and for watering livestock. Streams that flow year-round and springs are common in the county, and artesian wells are common in the area around Hornsby. Many lakes and farm ponds provide water for livestock and wildlife and for recreational uses. The county has about 832 acres of open water. Whiteville Lake, which is about 158 acres in size, is the largest lake in the county. Forestry is a significant economic enterprise in the county. More than half of the total acreage supports hardwood and coniferous trees. The timber industry and related

Figure 2.—The production of livestock is an important enterprise in Hardeman County. Pasture management practices are needed to maintain the forage quality in areas of Smithdale-Providence complex, 8 to 12 percent slopes, severely eroded.

occupations are significant elements of the county's economy.

History and Development

The area that is now Hardeman County was part of the territory occupied by the Chickasaw Indians from pre-Columbian times until the early nineteenth century. Settlers did not enter the Chickasaw territory between the Tennessee and Mississippi Rivers until President James Monroe commissioned Andrew Jackson and Isaac Shelby to form a treaty with the Chickasaw Nation. On October 19, 1818, the Chickasaw Purchase opened all of West Tennessee and the western tip of Kentucky to settlement.

After the treaty was signed, the area became settled rapidly. Some settlements were formed in what is now Hardeman County as early as 1819. Many settlers came from North Carolina, Virginia, South Carolina, and the middle and eastern parts of Tennessee.

Hardeman County was established on October 16, 1823. It was formed from parts of Hardin County and Madison County. The new county was named after Thomas Jones Hardeman, a prominent citizen and a veteran of the War of 1812. Hatchie Town was the first county seat. In 1825, the county seat was moved one mile to the south. It was named Bolivar, in honor of Simon Bolivar, the great Liberator of South America.

The vast hardwood forests were rapidly cleared by the incoming settlers. The first settlers in Hardeman County mainly produced cotton as a cash crop. In later years, economic instability in the marketplace and the migration of the boll weevil forced farmers to diversify and produce

other crops. Today, McAnulty Woods in Bolivar is the last remaining area of virgin forest in West Tennessee.

Physiography and Drainage

Hardeman County is in the East Gulf Coastal Plain section of the Coastal Plain province. Slopes range from nearly level to very steep. The flattest areas in the county are on the flood plains and low stream terraces. The largest expanse of level land is the northern end of the Hatchie River flood plain, which is 3 miles wide in places. The largest stream terrace is along the Hatchie River at Cloverport in the northern part of the county. This stream terrace is 1 to 3 miles wide. It is the largest single block of nearly level cropland in Hardeman County.

The smoothest uplands are the undulating broad plateaus in the western part of the county and the clayey "flatwoods" area in the southeastern part of the county at Middleton. The most highly dissected uplands are in the northeastern and south-central parts of the county, where slopes range from rolling to very steep.

The highest relief in Hardeman County is in the northeastern part of the county, where a few hills in the Hornsby area are slightly more than 200 feet above mean sea level. The highest point in the county, 688 feet above mean sea level, is in the southwestern part of the county along the divide between the Hatchie and Wolf Rivers. The lowest point in the county is approximately 310 feet above mean sea level. It is on the Hatchie River near the Madison County line.

Most parts of of Hardeman County are drained by the Hatchie River and its tributaries. The largest tributary of the Hatchie River in Hardeman County is Spring Creek, which drains the south-central and southwestern parts of the county. Other large tributaries of the Hatchie River include Muddy Creek, Little Hatchie Creek, Clover Creek, Porters Creek, and Piney Creek. The area in the southwestern part of the county along the Fayette County line is drained by the Wolf and Loosahatchie Rivers in Fayette County. The rate of water flow in the Hatchie River and its tributaries is sluggish, except during spring when it is moderate. Annual flooding is common along the Hatchie River. Many of the major tributaries and secondary streams have periods of flooding during late winter and early spring.

Geology

The geology of Hardeman County is diverse and complex, which accounts for the many different types of soils and the complex soil patterns found in the county. All of the geologic formations in Hardeman County are sedimentary in origin. The geologic materials in which the soils formed, listed in order of increasing age, are recent alluvium, windblown loess, fluvial deposits, and Tertiary and Cretaceous coastal plain sediments.

The alluvium in Hardeman County is of Holocene and Pleistocene age. The Holocene alluvium is the youngest geologic material in the county. It is on flood plains that currently receive recent sediments. The Pleistocene alluvium is older and more well developed. It is on older flood plains and low stream terraces, which currently receive little or no fresh sediment. The alluvium in Hardeman County is variable in texture, ranging from sand to clay. Sandy, loamy, and clayey soils formed in the alluvium, although the loamy soils are dominant.

The silty, wind-blown loess is of Pleistocene age. The loess deposits are thickest on gentle slopes in the northwestern part of the county, where they range from 3 to 5 feet or more in thickness. The loess becomes thinner in the southern and eastern sections of the county as the slopes become steeper. Deposits of loess are only about 1 to 3 feet thick on the gentle slopes in the southeastern part of the county. Most of the steep slopes in the county have little or no loess because of erosion of the surficial sediments. Loamy soils formed in the silty mantle of loess.

Fluvial deposits are Pleistocene and possibly Pliocene in age. These deposits cover the broad, upland plateaus in the western part of the county, most of the ridgetops in the north-central and south-central parts of the county, and stream terraces throughout the county. These fluvial deposits consist mainly of quartz sand and some silt, clay, and gravel. The soils that formed in fluvial deposits are generally loamy in texture. Sand and a small amount of gravel are mined from these deposits.

The Tertiary-age coastal plain sediments consist of the Eocene Claiborne and Wilcox Formations and the Paleocene Porters Creek Clay and Clayton Formation.

The Claiborne Formation consists mainly of quartz sand that has a few small lenses of kaolinitic clay. The sand in this formation is coarser than in any other formation in the county. The Claiborne Formation crops out on hillsides in the western and north-central parts of the county and on some ridgetops and upper side slopes in the northeastern and south-central parts of the county. The Claiborne Formation and the fluvial deposits are the most extensive geologic formations in Hardeman County. Mostly loamy soils formed in the Claiborne Formation. Gravel is common in parts of the Claiborne Formation, especially in an area about 3 to 6 miles south-southeast of Bolivar. Rounded quartz and quartzite gravel is common in this part of the county and is mined for use in the transportation industry. Sand is mined from the Claiborne Formation in parts of the county for use in the construction industry. Another characteristic of the Claiborne Formation is the presence of ferruginous sandstone at the basal part of the formation, near its contact with the Wilcox Formation. This sandstone was formed by local ground

water cementation and developed as tabular masses and boulders of ferruginous sandstone 10 or more feet thick. Some of these boulders are quite large, and they are most common in the northeastern part of the county in the areas around Pine Top and Palestine.

The Wilcox Formation consists of a heterogeneous mixture of sand, silt, and clay that has a minor interbedding of lignite, kaolin, and siderite. These sediments are interbedded and interlensed to various degrees; no sequence is laterally persistent for any great distance. The sand of the Wilcox Formation tends to be finer than the sand of the Claiborne Formation. Also, some of the sand in the Wilcox Formation is micaceous. Both clayey and loamy soils developed in this formation. The Wilcox Formation crops out on hillsides in the northeastern and south-central parts of the county and on some ridgetops in the east-central and southeastern parts of the county. Platy fragments of ironstone and siltstone are common in parts of this formation. Petrified wood can be found in the Wilcox Formation in some areas.

The Porters Creek Clay consists of claystone or shaley clay that is generally dark gray and has a smooth, waxy or soapy texture with a conchodial to hackle fracture. The material is locally known as "soapstone." It is mined and transported to a plant just south of Middleton, where it is dried and ground into cat litter. The Porters Creek Clay crops out in the southeastern and east-central parts of the county in a belt that extends from the Mississippi State line northeasterly to the Chester County line. The soils that formed in Porters Creek Clay are clayey and have a high content of montmorillonite, which gives them a high shrink-swell potential.

The Clayton Formation consists of clay and glauconitic sand. Outcrops are on some ridgetops and side slopes in the east-central and southeastern parts of the county. Clayey soils and a few loamy soils form in the Clayton Formation. An interesting and unusual feature of this formation is the presence of limestone. Limestone outcrops are present in the extreme southeastern part of Hardeman County on a steep hillside on the eastern side of Muddy Creek, between Tennessee Highway 57 and the Mississippi State line. The outcrops generally consist of in-situ or slumped boulders and local horizontal ledges of limestone. Some sinkholes are in this area, and a few small caves are present.

The Cretaceous coastal plain sediments consist of the Upper Cretaceous-age Owl Creek Formation and the McNairy Sand. These formations crop out in the extreme southeastern part of the county. The Owl Creek Formation is mostly clay but has some glauconite and marine fossils. The soils that formed in the Owl Creek Formation are clayey. The McNairy Sand is the lowest and oldest formation in the county. It is dominantly quartz sand that has a few small pockets of kaolinitic clay. The sand in this formation is finer than the sand in the Claiborne Formation. Loamy soils form in the McNairy Sand *(3)*.

Climate

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

In winter, the average temperature is 39.4 degrees F and the average daily minimum temperature is 28.8 degrees. The lowest temperature on record, which occurred on February 2, 1951, is -18 degrees. In summer, the average temperature is 77.4 degrees and the average daily maximum temperature is 88.7 degrees. The highest recorded temperature, which occurred on August 7, 1934, is 109 degrees.

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

The total annual precipitation is about 52.88 inches. Of this, 25.46 inches, or 48 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 6.37 inches on September 20, 1958. Thunderstorms occur on about 53 days each year, and most occur in summer.

The average seasonal snowfall is about 4 inches. The greatest snow depth at any one time during the period of record was 10 inches. On the average, 1 day of the year has at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 57 percent. Humidity is higher at night, and the average at dawn is about 81 percent. The sun shines 74 percent of the time possible in summer and 52 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10.9 miles per hour, in March.

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 underlying material. 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 generally is devoid of roots and other living organisms and has been changed little 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 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.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. In the legend for the detailed soil maps, narrowly defined units are indicated by symbols in which the first letter is a capital and the second is lowercase. For broadly defined units, the first and second letters are capitals.

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

General Soil Map Units

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

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

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

Soil Descriptions

1. Lexington-Smithdale Association

Very deep, nearly level to steep, well drained soils that formed in loess and loamy marine sediments; on uplands

Setting

Landform: Nearly level to rolling ridges and steep hillsides
Slope range: 0 to 25 percent

Composition

Extent of the association: 19 percent of the survey area
Extent of the soils in the association:
Lexington soils—36 percent
Smithdale soils—22 percent
Minor soils—42 percent

Soil Properties and Qualities

Lexington

Drainage class: Well drained
Position on the landform: Gently undulating to rolling ridges
Parent material: Loess and loamy marine deposits
Surface layer texture: Silt loam
Slope range: 0 to 12 percent

Smithdale

Drainage class: Well drained
Position on the landform: Hillsides
Parent material: Loamy marine deposits
Surface layer texture: Sandy loam and loam
Slope range: 8 to 25 percent

Minor Soils

- Providence soils on narrow ridgetops and hillsides
- Areas of gullied land on steep hillsides and at the heads of drainageways
- Loring soils in slight depressions on undulating ridges
- Ochlockonee soils in narrow drainageways

Land Use Suitability

Cropland

- Lexington soils in less sloping areas are well suited to row crops if properly managed to reduce the hazard of erosion.
- Smithdale soils in steep areas are poorly suited to use as cropland.

Pasture and hayland

- Lexington soils and less sloping areas of Smithdale soils are well suited to pasture and hayland.

Woodland

- Most areas of this association are well suited to woodland.

Residential and Commercial Uses

- Most of the less sloping areas of Lexington soils and Smithdale soils are suited to residential and commercial uses.
- Steep areas of Smithdale soils are poorly suited because of the slope.

2. Smithdale-Lucy Association

Very deep, undulating to steep, well drained soils that formed in loamy and sandy marine sediments; on uplands

Setting

Landform: Undulating ridges and steep hillsides
Slope range: 5 to 45 percent

Composition

Extent of the association: 21 percent of the survey area
Extent of the soils in the association:
Smithdale soils—65 percent
Lucy soils—22 percent
Minor soils—13 percent

Soil Properties and Qualities

Smithdale

Drainage class: Well drained
Position on the landform: Narrow ridges and steep hillsides
Parent material: Loamy marine deposits
Surface layer texture: Sandy loam and loam
Slope range: 5 to 45 percent

Lucy

Drainage class: Well drained
Position on the landform: Steep hillsides
Parent material: Sandy and loamy marine deposits
Surface layer texture: Loamy sand
Slope range: 20 to 45 percent

Minor Soils

- Lexington soils on nearly level to rolling ridgetops
- Luverne soils in lower positions on steep hillsides
- Iuka, Bibb, and Enville soils in narrow, intermittent drainageways

Land Use Suitability

Cropland

- Smithdale soils in less sloping areas are suited to row crops if properly managed to reduce the hazard of erosion.
- Smithdale and Lucy soils in steep areas are unsuited to cropland.

Pasture and hayland

- Smithdale soils are suited to pasture and hayland in areas that have slopes of less than 20 percent. Steeper areas of these soils are poorly suited as pasture and unsuited as hayland because of difficulties in operating equipment during harvesting and in providing pasture maintenance.

Woodland

- Most areas of this association are suited as woodland.
- Areas of Lucy soils that have slopes of more than 15 percent are poorly suited as woodland. The hazard of erosion, the restricted use of equipment on steeper slopes, the seedling mortality rate, and plant competition are management concerns.

Residential and Commercial Uses

- Most of the less sloping areas of Smithdale soils are suited to residential and commercial uses.
- Steep areas of Smithdale and Lucy soils are poorly suited because of the slope.

3. Loring-Lexington-Smithdale Association

Very deep, nearly level to steep, moderately well drained and well drained soils that formed in loess and loamy marine deposits; on uplands

Setting

Landform: Nearly level to rolling ridges and steep hillsides
Slope range: 0 to 25 percent

Composition

Extent of the association: 3 percent of the survey area
Extent of the soils in the association:
Loring soils—52 percent
Lexington soils—33 percent
Smithdale soils—8 percent
Minor soils—7 percent

Soil Properties and Qualities

Loring

Drainage class: Moderately well drained
Position on the landform: Nearly level to undulating ridges
Parent material: Loess
Surface layer texture: Silt loam
Slope range: 0 to 5 percent

Lexington

Drainage class: Well drained
Position on the landform: Undulating to rolling ridges
Parent material: Loess and loamy marine deposits
Surface layer texture: Silt loam and silty clay loam
Slope range: 2 to 12 percent

Smithdale

Drainage class: Well drained

Position on the landform: Narrow ridges and steep hillsides
Parent material: Loamy marine deposits
Surface layer texture: Sandy loam and loam
Slope range: 8 to 25 percent

Minor Soils

- Providence soils on narrow, rolling ridgetops
- Adaton soils in concave depressions on broad, nearly level ridges
- Kurk soils in concave positions at the heads of drainageways
- Iuka and Enville soils in narrow, intermittent drainageways

Land Use Suitability

Cropland

- Most areas of Loring and Lexington soils are well suited to use as cropland if they are properly managed to control erosion.
- Steep areas of Smithdale soils are poorly suited to use as cropland.

Pasture and hayland

- Loring and Lexington soils are well suited as pasture and hayland.
- Less sloping areas of Smithdale soils are suited as pasture.

Woodland

- This association is well suited as woodland. The hazard of erosion and the restricted use of equipment are management concerns in areas of Smithdale soils.

Residential and Commercial Uses

- Lexington soils are suited to most residential and commercial uses.
- The moderately well drained Loring soils have a fragipan in the subsoil. They have limitations for septic tank filter fields and for commercial and residential structures.
- The slope is a management concern in areas of Smithdale soils.

4. Luverne-Smithdale-Chickasaw Association

Very deep to deep, undulating to steep, well drained soils that formed in clayey and loamy marine deposits; on uplands

Setting

Landform: Rolling ridges and steep hillsides
Slope range: 8 to 45 percent

Composition

Extent of the association: 23 percent of the survey area
Extent of the soils in the association:
Luverne soils—35 percent
Smithdale soils—18 percent
Chickasaw soils—15 percent
Minor soils—32 percent

Soil Properties and Qualities

Luverne

Drainage class: Well drained
Position on the landform: Narrow, rolling ridges and steep hillsides
Parent material: Stratified, clayey marine deposits
Surface layer texture: Sandy loam and clay loam
Slope range: 8 to 45 percent

Smithdale

Drainage class: Well drained
Position on the landform: Narrow, rolling ridges and steep, highly dissected hillsides
Parent material: Loamy marine deposits
Surface layer texture: Sandy loam and loam
Slope range: 8 to 45 percent

Chickasaw

Drainage class: Well drained
Position on the landform: Hillsides
Parent material: Clayey marine deposits, claystone, clayey shale
Surface layer texture: Silty clay and loam
Slope range: 12 to 45 percent

Minor Soils

- Tippah soils on undulating ridges
- Wilcox soils on ridgetops and shoulder slopes
- Providence soils on narrow, rolling ridgetops
- Chenneby and Enville soils in narrow, intermittent drainageways

Land Use Suitability

Cropland

- Most areas of this association are poorly suited as cropland. The slope and the hazard of erosion are the major limitations.
- A few areas on less sloping ridges may be suited to crops if they are managed to control erosion through the use of conservation tillage practices, such as no-till.

Figure 3.—An area of the Luverne-Smithdale-Chickasaw association in the foreground. A permanent vegetative cover is needed to reduce the hazard of erosion in areas of these soils. In the background is an area of the Chenneby-Rosebloom-Urbo association. Flooding is a management concern in areas of these soils.

Pasture and hayland

- Less sloping areas of Luverne and Smithdale soils are suited as pasture and hayland (fig. 3).
- Steep areas are poorly suited as pasture and are unsuited as hayland because of difficulties in operating equipment during harvesting and in providing pasture maintenance.

Woodland

- Most areas of this association are suited as woodland. The hazard of erosion, the restricted use of equipment during harvesting and planting operations, and plant competition are some management concerns.

Residential and Commercial Uses

- Most areas of this association are unsuited for residential and commercial uses. The slope and the slow permeability in the subsoil are some major management concerns.
- Less sloping areas of Smithdale soils are suited to some residential and commercial uses.

5. Smithdale-Providence Association

Very deep, rolling to steep, well drained and moderately well drained soils that formed in loess and loamy marine deposits; on uplands

Setting

Landform: Narrow, rolling ridges and steep, highly dissected hillsides
Slope range: 5 to 45 percent

Composition

Extent of the association: 11 percent of the county
Extent of the soils in the association:
Smithdale soils—51 percent
Providence soils—41 percent

Minor soils—8 percent

Soil Properties and Qualities

Smithdale

Drainage class: Well drained
Position on the landform: Narrow, rolling ridges and steep hillsides
Parent material: Loamy marine deposits
Surface layer texture: Sandy loam and loam
Slope range: 8 to 45 percent

Providence

Drainage class: Moderately well drained
Position on the landform: Narrow, rolling ridgetops and shoulders
Parent material: Loess and loamy marine deposits
Surface layer texture: Silt loam and silty clay loam
Slope range: 5 to 12 percent

Minor Soils

- Lexington soils on narrow ridgetops and shoulder slopes
- Lucy soils on steep, highly dissected hillsides
- Enville soils in narrow drainageways

Land Use Suitability

Cropland

- Most areas are poorly suited to use of cropland because of the hazard of erosion and the slope.
- Some areas of Providence and Smithdale soils on broader ridges are suited to use as cropland if they are managed to control erosion.

Pasture and hayland

- Areas of soils on rolling ridgetops and shoulders are suited to pasture and hayland.
- Areas of soils on steep hillsides are poorly suited to pasture and hayland.

Woodland

- Most areas in this association are suited to woodland. The hazard of erosion, the restricted use of equipment on steeper slopes, and plant competition are some management concerns.

Residential and Commercial Uses

- Less sloping areas of Smithdale soils are suited to some residential and commercial uses.
- The moderately well drained Providence soils are poorly suited to septic tank absorption fields because of the wetness and the slow permeability in the fragipan.

6. Kurk-Adaton-Providence Association

Very deep, nearly level to undulating, moderately well drained to poorly drained soils that formed in a mixture of loess and silty alluvium and in loess and loamy marine deposits; on stream terraces

Setting

Landform: Nearly level to undulating stream terraces
Slope range: 0 to 8 percent

Composition

Extent of the association: 3 percent of the survey area
Extent of the soils in the association:
Kurk soils—34 percent
Adaton soils—28 percent
Providence soils—14 percent
Minor soils—24 percent

Soil Properties and Qualities

Kurk

Drainage class: Somewhat poorly drained
Position on the landform: Slightly convex knolls on nearly level stream terraces
Parent material: Loess and silty alluvium
Surface layer texture: Silt loam
Slope range: 0 to 3 percent

Adaton

Drainage class: Poorly drained
Position on the landform: Broad, nearly level stream terraces
Parent material: Loess and silty alluvium
Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Providence

Drainage class: Moderately well drained
Position on the landform: Narrow, convex ridges on undulating stream terraces
Parent material: Loess and loamy marine deposits
Surface layer texture: Silt loam and silty clay loam
Slope range: 2 to 8 percent

Minor Soils

- Loring soils on undulating stream terraces in the northeastern part of the county

- Lexington soils on slightly convex knolls
- Deanburg soils on short, steep side slopes
- Iuka and Ochlockonee soils in narrow drainageways

Land Use Suitability

Cropland

- Most areas of this association are well suited to use as cropland. Planting crops later in the growing season in areas of Kurk and Adaton soils helps to overcome the seasonal wetness. The hazard of erosion is a management concern in areas of Providence soils.

Pasture and hayland

- Kurk and Providence soils are well suited to pasture and hay.
- Adaton soils are seasonally wet, and careful selection of forage plants is necessary for the establishment and maintenance of pasture.

Woodland

- This association is well suited to woodland.

Residential and Commercial Uses

- This association is poorly suited to most commercial and residential uses. Kurk and Adaton soils are limited by the seasonal wetness. Providence soils are poorly suited to septic tank absorption fields because of the wetness and the slow permeability in the fragipan.

7. Chenneby-Rosebloom-Urbo Association

Very deep, nearly level, somewhat poorly and poorly drained soils that formed in silty, loamy, and clayey alluvium; on flood plains of the Hatchie River and its major tributaries

Setting

Landform: Nearly level flood plains
Slope range: 0 to 3 percent

Composition

Extent of the association: 13 percent of the survey area
Extent of the soils in the association:
Chenneby soils—28 percent
Rosebloom soils— 19 percent
Urbo soils—11 percent
Minor soils—42 percent

Soil Properties and Qualities

Chenneby

Drainage class: Somewhat poorly drained
Position on the landform: Flood plains
Parent material: Loamy alluvium
Surface layer texture: Silt loam and silty clay loam
Slope range: 0 to 2 percent

Rosebloom

Drainage class: Poorly drained
Position on the landform: Flood plains
Parent material: Silty alluvium
Surface layer texture: Silty clay loam
Slope range: 0 to 2 percent

Urbo

Drainage class: Somewhat poorly drained
Position on the landform: Flood plains
Parent material: Clayey alluvium
Surface layer texture: Silty clay loam
Slope range: 0 to 3 percent

Minor Soils

- Areas of Bibb soils that are intermingled with areas of Rosebloom soils on flood plains
- Areas of Amagon soils that are intermingled with areas of Chenneby soils on flood plains along the Hatchie River
- Iuka, Nugent, and Enville soils at the mouths of secondary streams

Land Use Suitability

Cropland

- Most areas of this association are poorly suited to use as cropland because of frequent flooding along the Hatchie River and its major tributaries.
- Areas of Urbo and Chenneby soils that are occasionally flooded are suited to use as cropland if they are planted later in the season.

Pasture and hayland

- Areas of Chenneby and Urbo soils that are occasionally flooded are suited to pasture. The selection of water-tolerant forage plants, such as fescue and white clover, is recommended.
- Rosebloom soils are poorly suited to pasture and hay.

Woodland

- This association is well suited to water-tolerant bottom land hardwoods.

Residential and Commercial Uses

• This association is poorly suited for most uses because of the flooding and the wetness.

8. Iuka-Ochlockonee-Chenneby Association

Very deep, nearly level, well drained to somewhat poorly drained soils that formed in loamy alluvium; on flood plains of secondary streams

Setting

Landform: Nearly level flood plains along secondary streams
Slope range: 0 to 2 percent

Composition

Extent of the association: 7 percent of the survey area
Extent of the soils in the association:
Iuka soils— 34 percent
Ochlockonee soils—29 percent
Chenneby soils—15 percent
Minor soils—22 percent

Soil Properties and Qualities

Iuka

Drainage class: Moderately well drained
Position on the landform: Flood plains along secondary streams
Parent material: Loamy alluvium
Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Ochlockonee

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

Chenneby

Drainage class: Somewhat poorly drained
Position on the landform: Flood plains along secondary streams
Parent material: Loamy alluvium
Surface layer texture: Silt loam
Slope range: 0 to 2 percent

Minor Soils

• Nugent soils along narrow drainageways in the southwestern part of the county
• Adaton and Steens soils on low stream terraces
• Deanburg soils on convex knolls on undulating stream terraces
• Areas of Enville soils that are intermingled with areas of Iuka and Chenneby soils on narrow drainageways

Land Use Suitability

Cropland

• Most areas of this association are well suited to use as cropland. Planting crops later in the growing season, when the risk of flooding is reduced, is recommended in areas of Iuka and Chenneby soils.

Pasture and hayland

• This association is well suited to pasture and hay. Planting forage species that can tolerate short periods of wetness, such as fescue and white clover, is recommended in areas of Chenneby soils.

Woodland

• This association is well suited to most bottom land hardwoods.

Residential and Commercial Uses

• This association is poorly suited to most residential and commercial uses because of the flooding.

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of 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. More information about each map unit is given under the heading "Use and Management of the Soils."

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 or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas 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, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Lexington silty clay loam, 2 to 5 percent slopes, severely eroded, is a phase of the Lexington series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Smithdale-Providence complex, 8 to 12 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous

areas, or it can be made up of all of them. Chenneby and Amagon soils, frequently flooded, is an undifferentiated group in this survey area.

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

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

Soil Descriptions

Ad—Adaton silt loam

Setting

Landscape position: Upland flats and depressions and low stream terraces
Slope range: 0 to 2 percent
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 8 inches, grayish brown, very friable silt loam

Subsurface layer:
8 to 13 inches, light brownish gray, mottled, very friable silt loam

Subsoil:
13 to 17 inches, light brownish gray, mottled, friable silt loam
17 to 32 inches, light brownish gray, mottled, friable silty clay loam
32 to 60 inches, gray, mottled, firm silty clay loam

Inclusions

- A few small areas of the somewhat poorly drained Kurk and Steens soils on slightly convex knolls
- Areas of overwash at the base of steeper slopes along edges of the map unit
- Areas of soils in the eastern part of the county that are ponded for several weeks during winter and early spring

Important Soil Properties and Features

Drainage class: Poorly drained
Permeability: Slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: Seasonal, at the surface to a depth of 0.5 foot, in winter and spring; some areas are ponded for several weeks in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Seasonal wetness is a limitation for planting and harvesting most crops.

Suitable management practices:
- Planting short-season annuals, such as soybeans or grain sorghum, later in the growing season is recommended.

Capability class: IIIw

Pasture and hayland

Suitability: Suited
General management considerations:
- Only those hay and pasture plants that can tolerate wetness should be selected.
- The seasonal high water table limits grazing for several days at a time during the winter and early spring.

Suitable management practices:
- Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
- Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Suited to bottom land hardwoods
Trees suitable for planting: American sycamore, yellow-poplar, willow oak, swamp chesnut oak, cherrybark oak, and sweetgum
General management considerations:
- The main limitations for the management of timber on this soil are seedling mortality, the equipment limitation, and plant competition.

Suitable management practices:
- Planting water-tolerant species and planting on beds increase the seedling survival rate.
- Logging during dry periods in summer and early fall and using low-pressure ground equipment causes less damage to the soil and helps to maintain productivity.
- Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to most residential and

commercial uses because of the seasonal wetness and low strength.
Suitable management practices:
• A well designed drainage system of open ditches and land shaping helps to lower the seasonal water table and reduces surface water from areas used for septic tank absorption fields, dwellings, and small commercial buildings.
• Dwellings with basements are not recommended because of the wetness.
• If the soil is to be used as a base for roads and streets, mixing the upper part of the soil with coarser textured material and designing an adequate drainage system will increase the soil's strength and stability.

Ao—Adaton silt loam, overwash

Setting

Landscape position: Upland depressions and low stream terraces
Slope range: 0 to 2 percent
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 10 inches, yellowish brown, very friable silt loam

Subsurface layer:
10 to 18 inches, pale brown, very friable silt loam

Subsoil:
18 to 26 inches, light gray, mottled, friable silt loam
26 to 60 inches, light brownish gray, mottled, friable silty clay loam

Inclusions

• A few small areas of the somewhat poorly drained Kurk and Steens soils on slightly convex knolls
• Small areas of soils at the edges of the map unit, adjacent to flood plains, that are occasionally flooded

Important Soil Properties and Features

Drainage class: Poorly drained
Permeability: Slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: Seasonal, at a depth of 1 to 1.5 feet, in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Seasonal wetness is a limitation for planting and harvesting crops.
Suitable management practices:
• Planting short-season annuals, such as soybeans or grain sorghum, later in the growing season is recommended.
Capability class: IIIw

Pasture and hayland

Suitability: Suited
General management considerations:
• Only those hay and pasture plants that can tolerate wetness should be selected.
• The seasonal high water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Suited to bottom land hardwoods
Trees suitable for planting: American sycamore, yellow-poplar, willow oak, swamp chesnut oak, cherrybark oak, and sweetgum
General management considerations:
• The main limitations for the management of timber on this soil are seedling mortality, the equipment limitation, and plant competition.
Suitable management practices:
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Logging during dry periods in summer and early fall and using low-pressure ground equipment causes less damage to the soil and helps to maintain productivity.
• Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the seasonal wetness.
Suitable management practices:
• A well designed drainage system of open ditches and

land shaping helps to lower the seasonal water table and reduces surface water from areas used for septic tank absorption fields, dwellings, and small commercial buildings.
• Dwellings with basements are not recommended because of the wetness.
• If the soil is to be used as a base for roads and streets, mixing the upper part of the soil with coarser textured material and designing an adequate drainage system will increase the soil's strength and stability.

CA—Chenneby and Amagon soils, frequently flooded

Setting

Landscape position: Flood plains along the Hatchie River and major tributaries
Shape of areas: Long and narrow
Size of areas: 50 to 500 acres
Composition of the map unit: 60 percent Chenneby soil, 30 percent Amagon soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Chenneby

Surface layer:
0 to 4 inches, brown, mottled, very friable silty clay loam

Subsurface layer:
4 to 9 inches, dark yellowish brown, mottled, very friable silty clay loam

Subsoil:
9 to 19 inches, brown, mottled, friable silty clay loam
19 to 26 inches, brown, mottled, friable silty clay loam
26 to 38 inches, light brownish gray, mottled, friable silty clay loam
38 to 60 inches, light brownish gray, mottled, friable silty clay loam

Amagon

Surface layer:
0 to 8 inches, brown, mottled, very friable silt loam

Subsurface layer:
8 to 15 inches, light gray, mottled, very friable silt loam

Subsoil:
15 to 30 inches, light brownish gray, mottled, firm silty clay loam
30 to 60 inches, light brownish gray, mottled, firm silty clay loam

Inclusions

• A few small areas of the moderately well drained Iuka soils on natural levees
• Intermingled areas of the clayey Urbo soils in the southeastern part of the county
• Areas of the poorly drained Rosebloom and Bibb soils in old meanders and sloughs

Important Soil Properties and Features

Drainage class: Chenneby—somewhat poorly drained; Amagon—poorly drained
Permeability: Chenneby—moderate; Amagon—slow
Available water capacity: High
Soil reaction: Chenneby—strongly acid or very strongly acid; Amagon—moderately acid to strongly acid
Flooding: Frequent for long periods in winter and spring; ponded for very long periods
High water table: Seasonal during winter and spring, at a depth of 0.5 to 1.0 foot in the Amagon soil and at a depth of 1 to 1.5 feet in the Chenneby soil

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• Seasonal wetness and frequent flooding limit the production and harvest of crops.
Capability class: Vw

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• This map unit is poorly suited to pasture and hay because of the frequent flooding and seasonal wetness.
Suitable management practices:
• In some areas of the unit where the flooding is less severe, water-tolerant plants, such as tall fescue and white clover, can be grown for pasture.

Woodland

Suitability: Suited to water-tolerant species; provides excellent habitat for wetland wildlife
Trees suitable for planting in areas that are flooded for short periods: American sycamore, sweetgum, willow oak, cherrybark oak, swamp chesnut oak, green ash, shagbark hickory, and Nuttall oak
Trees suitable for planting in areas that have standing water for several months: Baldcypress, sweetgum, swamp chesnut oak, swamp tupelo, and black willow
General management considerations:
• The main limitations for the management of timber in this

map unit are the restricted use of equipment for harvesting and planting operations, seedling mortality, and plant competition.
Suitable management practices:
• Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• This map unit is unsuited to all residential and commercial uses because of the frequent flooding and the seasonal wetness.

CE—Chenneby and Enville soils, frequently flooded

Setting

Landscape position: Flood plains along major tributaries of the Hatchie River
Shape of areas: Long and narrow
Size of areas: 10 to 800 acres
Composition of the map unit: 50 percent Chenneby soil, 40 percent Enville soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Chenneby

Surface layer:
0 to 7 inches, yellowish brown, mottled, very friable silt loam

Subsoil:
7 to 35 inches, mottled light brownish gray, yellowish brown, and strong brown, friable silt loam
35 to 41 inches, light brownish gray, mottled, friable silt loam
41 to 60 inches, light brownish gray, mottled, friable silty clay loam

Enville

Surface layer:
0 to 6 inches, yellowish brown, mottled, very friable sandy loam

Subsoil:
6 to 18 inches, strong brown, mottled, friable loam
18 to 29 inches, grayish brown, mottled, friable loam
29 to 45 inches, grayish brown, mottled, friable sandy loam
45 to 60 inches, grayish brown, mottled, friable silt loam

Inclusions

• A few small areas of the moderately well drained Iuka and excessively drained Nugent soils on natural levees
• Small depressional areas of the poorly drained Rosebloom, Amagon, and Bibb soils at the base of steep hillsides

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: Chenneby—high; Enville—moderate
Soil reaction: Strongly acid or very strongly acid
Flooding: Frequent for brief to long periods in winter and spring
High water table: Seasonal, at a depth of 1.0 foot to 1.5 feet, in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Seasonal wetness and frequent flooding limit the production and harvest of most crops.
Suitable management practices:
• If this unit is currently used for crop production, planting later in the growing season and planting short-season annuals, such as soybeans or grain sorghum, is recommended.
Capability class: IVw

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• This unit is poorly suited to pasture and hay because of the frequent flooding and seasonal wetness.
Suitable management practices:
• In some areas of the unit where the flooding is less severe, water-tolerant plants, such as tall fescue and white clover, can be grown for pasture.
• Grazing should be deferred until a period from late spring to fall.

Woodland

Suitability: Suited to water-tolerant species
Trees suitable for planting: Yellow-poplar, American sycamore, sweetgum, swamp chesnut oak, green ash, cherrybark oak, and pin oak

General management considerations:
• The main limitations for the management of timber in this map unit are seedling mortality, the restricted use of equipment for harvesting and planting operations, and plant competition.
Suitable management practices:
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• This map unit is unsuited to all residential and commercial uses because of the frequent flooding and the seasonal wetness.

Cn—Chenneby silt loam, occasionally flooded

Setting

Landscape position: Flood plains
Slope range: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 800 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 6 inches, brown, very friable silt loam

Subsurface layer:
6 to 12 inches, dark grayish brown, mottled, very friable silt loam

Subsoil:
12 to 21 inches, brown, mottled, friable silt loam
21 to 29 inches, grayish brown, mottled, friable silt loam
29 to 40 inches, grayish brown, mottled, friable silt loam
40 to 60 inches, light brownish gray, mottled, friable clay loam

Inclusions

• Small areas of the poorly drained Bibb, Rosebloom, and Amagon soils in concave depressions adjacent to uplands
• Narrow areas, along natural levees, of the moderately well drained Iuka and well drained Ochlockonee soils

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flooding: Occasional for very brief to brief periods in winter and early spring (fig. 4)
High water table: Seasonal, at a depth of 1.0 foot to 1.5 feet, in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Seasonal wetness and flooding limit the production and harvest of some crops.
Suitable management practices:
• Planting short-season annuals, such as soybeans or grain sorghum, is recommended in areas of this soil because of the wetness and the hazard of flooding early in spring.
Capability class: IIw

Pasture and hayland

Suitability: Suited
General management considerations:
• Only those hay and pasture plants that can tolerate periodic inundation and seasonal wetness should be selected.
• The seasonal high water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, Nuttall oak, American sycamore, sweetgum, swamp chesnut oak, green ash, and shagbark hickory
General management considerations:
• The main limitations for the management of timber are equipment limitations caused by the flooding and seasonal wetness, seedling mortality, and plant competition.
Suitable management practices:
• The hazard of flooding and the seasonal high water table restrict the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.

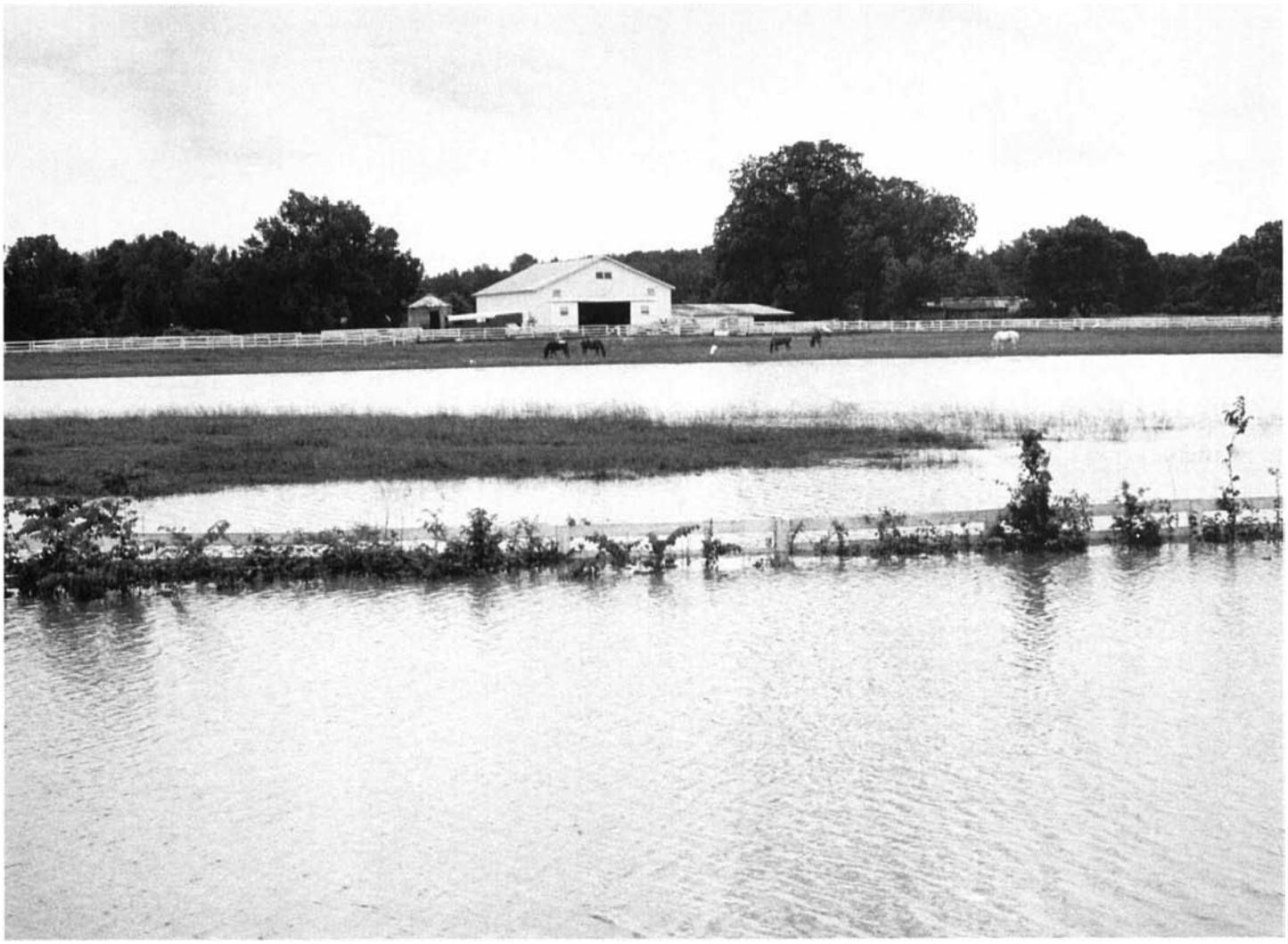


Figure 4.—An area of Chenneby silt loam, occasionally flooded. Pasture grasses that tolerate short periods of wetness and inundation, such as tall fescue and white clover, are recommended in areas of this soil.

• Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to residential and commercial uses because of the flooding and seasonal wetness.
Suitable management practices:
• Dwellings, small commercial buildings, and roads and streets should be located in higher areas that are not subject to flooding and excessive wetness.

CwE3—Chickasaw silty clay, 12 to 25 percent slopes, severely eroded

Setting

Landscape position: Highly dissected hillsides in the eastern part of the county
Shape of areas: Irregular and narrow
Size of areas: 5 to 500 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 4 inches, brown, friable silty clay

Subsoil:
4 to 14 inches, yellowish brown, mottled, firm clay
14 to 35 inches, mottled light yellowish brown and strong brown, firm clay

Substratum:
35 to 49 inches, pale brown, mottled, firm clay
49 to 60 inches, grayish brown, highly fractured claystone

Inclusions

- A few small, intermingled areas of the well drained Luverne soils
- Areas of the moderately well drained Wilcox soils on shoulder slopes
- A few small areas of the moderately well drained Iuka and somewhat poorly drained Chenneby and Urbo soils at the base of hillsides

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Very slow
Available water capacity: Moderate to low
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: None
Depth to fractured claystone: 40 to 60 inches

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- This soil is unsuited as cropland because of the slope and the high potential for erosion if cultivated.

Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
- The limited available water capacity during dry seasons causes the soil to be droughty and reduces the yields.
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.

Suitable management practices:
- Forage plants that can tolerate droughty conditions, such as improved bermudagrass, should be selected.
- Stocking rates should be adjusted to prevent overgrazing and to help prevent erosion.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: White oak, chesnut oak, shortleaf pine, Virginia pine, and eastern redcedar

General management considerations:
- The main limitations for the management of timber in areas of this map unit are seedling mortality, the hazard of erosion, the equipment limitation, and plant competition.

Suitable management practices:
- Planting hardier seedlings on north- and east-facing slopes and selecting drought-resistant species increase the seedling survival rate.
- Steep yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
- Wheeled and tracked equipment can be used in most areas, but planting and harvesting operations should be conducted only from midsummer through early fall.
- Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
- This soil is unsuited to most residential and commercial uses because of the slope, the permeability of the subsoil, the depth to rock, and the high shrink-swell potential.

CwF—Chickasaw loam, 20 to 45 percent slopes

Setting

Landscape position: Steep, highly dissected hillsides in the eastern part of the county
Shape of areas: Irregular and narrow
Size of areas: 5 to 800 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 4 inches, dark brown, very friable loam

Subsurface layer:
4 to 9 inches, yellowish brown, very friable loam

Subsoil:
9 to 12 inches, yellowish brown, mottled, friable clay loam
12 to 29 inches, pale brown, mottled, firm clay
29 to 37 inches, brown, mottled, firm clay

Substratum:
37 to 47 inches, brown, mottled, firm clay
47 to 60 inches, brown, highly fractured claystone

Inclusions

- A few small, intermingled areas of the well drained Luverne soils
- Areas of the somewhat poorly drained Wilcox soils on shoulder slopes
- A few small areas of the moderately well drained Iuka and somewhat poorly drained Chenneby and Urbo soils at the base of hillsides

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Very slow
Available water capacity: Moderate or low
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: None
Depth to fractured claystone: 40 to 60 inches

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- The soil is unsuited as cropland because of the slope and the high potential for erosion if cultivated.

Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
- The slope, the high runoff rate, and the hazard of erosion are limitations for pasture management.
- A permanent vegetative cover is needed to prevent erosion.
- The high runoff rate can cause a moisture deficit in late summer, and stands of less hardy plants may suffer from moisture stress.

Suitable management practices:
- Selecting forage plants that can tolerate droughty conditions, such as improved bermudagrass or sericea lespedeza, is recommended.
- Reseeding the pasture may be necessary if the plant cover does not provide a adequate stand of desirable species for forage production and erosion control.
- Stocking rates should be adjusted, especially in steeper areas, to prevent overgrazing and to help prevent erosion.
- Pasture in areas that have more than 30 percent slopes may be too steep for the safe operation of farm equipment unless access roads are built on the contour for broadcasting seed, fertilizer, and herbicide.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: Virginia pine and eastern redcedar
General management considerations:
- The main limitations for the management of timber in areas of this map unit are seedling mortality, the hazard of erosion, the equipment limitation, and plant competition.

Suitable management practices:
- Planting hardier seedlings on north- and east-facing slopes and selecting drought-resistant species increase the seedling survival rate.
- Steep yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
- Wheeled and tracked equipment can be used in most areas, but planting and harvesting operations should be conducted only from midsummer through early fall.
- Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
- The unit is unsuited to most residential and commercial uses because of the slope, the permeability in the subsoil, the depth to rock, and the high shrink-swell potential.

DeB2—Deanburg silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating stream terraces
Shape of areas: Irregular
Size of areas: 5 to 30 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 7 inches, brown, mottled, very friable silt loam

Subsoil:
7 to 14 inches, strong brown, friable loam
14 to 24 inches, strong brown, friable clay loam
24 to 38 inches, brown, friable loam
38 to 52 inches, reddish brown, friable sandy loam
52 to 60 inches, stratified yellowish red, very friable sandy loam and pale brown, loose loamy sand

Inclusions

- Small areas of the somewhat poorly drained Kurk soils in saddles

• Areas of the moderately well drained Iuka soils adjacent to narrow drainageways
• Areas of the poorly drained Steens soils in slight depressions

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid to rapid in the lower part
Available water capacity: Moderate or high
Soil reaction: Strongly acid or moderately acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Suited
General management considerations:
• This soil is susceptible to erosion, which can result in the removal of valuable topsoil.
Suitable management practices:
• No-till planting, contour farming, and stripcropping can help to control erosion and maintain productivity.
Capability class: IIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• This soil has no significant limitations for forage production if erosion is controlled.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, cherrybark oak, mockernut hickory, and white oak
General management considerations:
• The main limitation for the management of timber is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Well suited
General management considerations:
• Low strength is a limitation for local roads and streets.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

DeB3—Deanburg clay loam, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating stream terraces
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 4 inches, brown, very friable clay loam

Subsoil:
4 to 20 inches, strong brown, friable clay loam
20 to 30 inches, yellowish red, friable loam
30 to 37 inches, strong brown, friable sandy loam
37 to 60 inches, stratified yellowish red, loose sand and yellowish red, very friable sandy loam

Inclusions

• Small areas of the somewhat poorly drained Kurk soils in saddles
• Areas of the moderately well drained Iuka soils adjacent to narrow drainageways
• Areas of the poorly drained Steens soils in slight depressions

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid to rapid in the lower part
Available water capacity: Moderate
Soil reaction: Strongly acid or moderately acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Suited
General management considerations:
• This soil is susceptible to erosion, which can result in the removal of valuable topsoil.
Suitable management practices:
• No-till planting, contour farming, and stripcropping can help to control erosion and maintain productivity.

Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• This soil has no significant limitations for forage production if erosion is controlled.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, cherrybark oak, mockernut hickory, and white oak
General management considerations:
• The main limitation for the management of timber is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Well suited
General management considerations:
• Low strength is a limitation for local roads and streets.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

DeC3—Deanburg clay loam, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Undulating stream terraces
Shape of areas: Irregular to narrow
Size of areas: 5 to 50 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 4 inches, brown, very friable clay loam

Subsoil:
4 to 20 inches, strong brown, friable clay loam
20 to 30 inches, yellowish red, friable loam
30 to 37 inches, strong brown, friable sandy loam
37 to 60 inches, stratified yellowish red, loose sand and yellowish red, very friable sandy loam

Inclusions

• Areas of the moderately well drained Iuka soils that are adjacent to narrow drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid to rapid in the lower part
Available water capacity: Moderate
Soil reaction: Strongly acid or moderately acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This soil should not be used continuously as cropland because of the slope and the high erosion potential.
Suitable management practices:
• Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
Capability class: IVe

Pasture and hayland

Suitability: Well suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, chesnut oak, mockernut hickory, and white oak
General management considerations:
• The main limitations for the management of timber are seedling mortality and plant competition.
Suitable management practices:
• Planting hardier, drought-tolerant species increases the seedling survival rate.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Suited
General management considerations:
• The slope is a limitation for small commercial buildings.
• Low strength is a limitation for local roads and streets.
Suitable management practices:
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

En—Enville silt loam, occasionally flooded

Setting

Landscape position: Flood plains
Slope range: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 250 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 10 inches, yellowish brown, very friable silt loam

Substratum:
10 to 15 inches, brown, mottled, very friable loam
15 to 34 inches, light gray, mottled, friable sandy loam
34 to 41 inches, light gray, mottled, friable sandy loam
41 to 60 inches, pale brown, mottled, loose loamy sand

Inclusions

• Small areas of the poorly drained Bibb and Rosebloom soils in depressions
• Areas of the moderately well drained Iuka and well drained Ochlockonee soils on natural levees

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flooding: Occasional for very brief to brief periods in winter and spring
High water table: Seasonal, at a depth of 1.0 foot to 1.5 feet, in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Seasonal wetness and flooding limit the production and harvest of some crops.
Suitable management practices:
• Because of the wetness and the hazard of flooding early in spring, planting short-season annuals, such as soybeans or grain sorghum, is recommended.
Capability class: IIw

Pasture and hayland

Suitability: Suited
General management considerations:
• Only those hay and pasture plants that can tolerate periodic inundation and seasonal wetness should be selected.
• The seasonal high water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, American sycamore, sweetgum, swamp chesnut oak, green ash, and shagbark hickory
General management considerations:
• The main limitations for the management of timber are the equipment limitation caused by flooding and seasonal wetness and plant competition.
Suitable management practices:
• The hazard of flooding and the seasonal high water table restrict the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.
• Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to residential and commercial uses because of the flooding and seasonal wetness.

Suitable management practices:
• Dwellings, small commercial buildings, and roads and streets should be located in higher areas that are not subject to flooding and excessive wetness.

Fk—Falkner silt loam

Setting

Landscape position: Nearly level upland depressions and stream terraces in the southwestern part of the county
Slope range: 0 to 2 percent
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 8 inches, brown, very friable silt loam

Subsoil:
8 to 15 inches, light yellowish brown, mottled, firm silty clay loam
15 to 26 inches, light yellowish brown, mottled, firm silty clay loam
26 to 35 inches, light brownish gray, mottled, firm silty clay
35 to 60 inches, gray, mottled, firm clay

Inclusions

• A few small areas of the moderately well drained Wilcox soils in slightly higher positions on the landscape
• Intermingled areas of the somewhat poorly drained Tippah soils

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.5 to 2.0 feet in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Seasonal wetness limits the production and harvest of some crops.
Suitable management practices:
• Because of the wetness early in spring, planting short-season annuals, such as soybeans or grain sorghum, is recommended.
Capability class: IIw

Pasture and hayland

Suitability: Well suited
General management considerations:
• Only those hay and pasture plants that can tolerate wetness should be selected.
• A perched water table limits grazing for several weeks at a time during the winter and early spring.
Suitable management practices:
• Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, American sycamore, sweetgum, swamp chesnut oak, green ash, and shagbark hickory
General management considerations:
• The main limitations for the management of timber are the equipment limitation caused by wetness and the plant competition.
Suitable management practices:
• The seasonal high water table restricts the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.
• Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the slow permeability of the subsoil, and the high shrink-swell potential.

Gu—Gullied land-Hapludults complex, very steep

Setting

Landscape position: Steep to very steep, extremely dissected hillsides
Slope range: 25 to 90 percent
Shape of areas: Irregular
Size of areas: 10 to 200 acres
Composition of the map unit: 80 percent areas of

Gullied land, 15 percent Hapludults, and 5 percent included soils
Major uses: Woodland, a few areas of pasture

Typical Profile

Gullied land

The areas of gullied land consist of numerous U- and V-shaped gullies that range in size from 8 to 75 feet deep, 10 to 50 feet wide, and 50 to 200 feet long. The sides and floor of most gullies consist of loamy and sandy soil material, although the floor of some gullies on the lower parts of hillsides consists of clayey marine sediments. Ironstone fragments and plates that range from several inches to 4 feet in diameter cover the surface of many gullied areas.

Hapludults

Hapludults are in the areas between gullies. They consist of extremely truncated loamy and sandy material that is 2 to 4 feet thick over sandy marine deposits. Many areas of Hapudults have stratified layers of loamy and sandy soil material. Ironstone fragments cover the surface in many areas.

Inclusions

- A few small areas of the well drained Lexington and Deanburg soils in less truncated areas at the heads of gullies

Important Soil Properties and Features

Drainage class: Well drained to somewhat excessively drained
Permeability: Moderate to rapid
Available water capacity: Low
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- The soil is unsuited as cropland because of the slope, the high potential for erosion, and severe truncation by gullies.

Capability class: VIIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
- This unit is poorly suited to pasture and hay because of the slope and the severe truncation by gullies.

Suitable management practices:
- Some fringe areas at the heads of gullies and depositional areas on the lower slopes can be reclaimed for use as pasture.
- Selecting plant species that can tolerate droughty conditions and adjusting stocking rates are recommended.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: Eastern redcedar, loblolly pine, Virginia pine, chesnut oak, and white oak
General management considerations:
- The main limitations for the management of timber on this soil are the hazard of erosion, the restricted use of equipment for planting and harvesting, and seedling mortality.

Suitable management practices:
- All forestry operations require special planning and designs to overcome the difficulties encountered in planting, harvesting, and maintaining areas of this unit.
- Planting older and hardier seedlings increases the seedling survival rate.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
- This map unit is unsuited to residential and commercial uses because of the slope and the severe dissection by gullies.

lu—luka silt loam, occasionally flooded

Setting

Landscape position: Flood plains along secondary streams
Slope range: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 250 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 5 inches, brown, very friable silt loam

Substratum:
5 to 11 inches, yellowish brown, mottled, massive loam
11 to 18 inches, brown, friable sandy loam and pockets of strong brown, very friable loamy sand
18 to 28 inches, pale brown, mottled, friable silt loam and strata of strong brown sandy loam

28 to 34 inches, strong brown, mottled, very friable sandy loam and pockets of light brownish gray silt loam
34 to 38 inches, light brownish gray, mottled, friable silt loam
38 to 60 inches, grayish brown, mottled, loose loamy sand

Inclusions

- A few intermingled areas of the well drained Ochlockonee and excessively drained Nugent soils
- Small areas of the somewhat poorly drained Enville and Chenneby soils in more wet areas along the edges of the map unit

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flooding: Occasional for very brief to brief periods in winter and early spring
High water table: Seasonal, at a depth of 1.5 to 3.0 feet, in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- Most locally adapted crops can be grown, and good yields can be attained.
- Small grains produce good yields on this soil but can be damaged by the occasional flooding.

Suitable management practices:
- Seasonal flooding occurs in winter and early spring, but it is not a limitation for management.

Capability class: IIw

Pasture and hayland

Suitability: Well suited
General management considerations:
- Only those hay and pasture plants that can tolerate periodic inundation and seasonal wetness should be selected.
- The seasonal high water table limits grazing for several days at a time during the winter and early spring.

Suitable management practices:
- Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
- Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, American sycamore, sweetgum, swamp chesnut oak, green ash, cherrybark oak, and pin oak
General management considerations:
- The main limitations for the management of timber are the restricted use of equipment because of flooding and seasonal wetness and the plant competition.

Suitable management practices:
- The hazard of flooding and the seasonal high water table restrict the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.
- Site preparation, such as planting on beds, chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to residential and commercial uses because of the flooding and seasonal wetness.

Suitable management practices:
- Dwellings, small commercial buildings, and roads and streets should be located in higher areas that are not subject to flooding and excessive wetness.

Kr—Kurk silt loam

Setting

Landscape position: Stream terraces and concave depressions on uplands
Slope range: 0 to 3 percent
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 7 inches, yellowish brown, mottled, very friable silt loam

Subsoil:
7 to 25 inches, light yellowish brown, mottled, friable silt loam
25 to 30 inches, light brownish gray, mottled, friable silt loam
30 to 48 inches, light brownish gray, mottled, friable silty clay loam

48 to 60 inches, mottled light brownish gray, reddish yellow, and light yellowish brown, friable silt loam

Inclusions

- A few small areas of the poorly drained Adaton soils in slight depressions
- Areas of the moderately well drained Providence and Loring soils in slightly higher positions that are adjacent to uplands

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Seasonal, at a depth of 1 to 2 feet, in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
- In most years, the seasonal wetness does not restrict the planting of most summer annuals.

Suitable management practices:
- Planting crops later in the spring improves plant germination and early growth.

Capability class: IIw

Pasture and hayland

Suitability: Well suited
General management considerations:
- Only those hay and pasture plants that can tolerate short periods of wetness should be selected.
- The seasonal high water table limits grazing for several days at a time during the winter and early spring.

Suitable management practices:
- Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
- Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Cherrybark oak, yellow poplar, sweetgum, Nuttall oak, American sycamore, and loblolly pine
General management considerations:
- The main limitations for the management of timber on this soil are the equipment limitation and plant competition.

Suitable management practices:
- The seasonal high water table restricts the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.
- Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- The seasonal wetness, the moderately slow permeability, and the low strength are limitations for most residential and commercial uses.

Suitable management practices:
- Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings.
- Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
- If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

LeA—Lexington silt loam, 0 to 2 percent slopes

Setting

Landscape position: Nearly level upland ridgetops
Shape of areas: Broad and nearly level
Size of areas: 20 to 100 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 8 inches, dark yellowish brown, very friable silt loam

Subsoil:
8 to 28 inches, strong brown, friable silty clay loam
28 to 38 inches, strong brown, friable silt loam
38 to 53 inches, reddish brown, friable silt loam
53 to 60 inches, reddish brown, friable loam

Inclusions

- Small areas of the moderately well drained Providence and Loring soils in slightly concave depressions

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid in the lower part

Available water capacity: High
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most locally adapted crops can be grown, and good yields can be attained.
Suitable management practices:
• Growing cover crops helps to prevent erosion, increases the moisture content, and helps to maintain productivity.
Capability class: I

Pasture and hayland

Suitability: Well suited
General management considerations:
• This soil has no significant limitations for forage production if erosion is controlled.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Well suited
General management considerations:
• Low strength is a limitation for local roads and streets.
• The permeability in the subsoil is a limitation for septic tank absorption fields.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Increasing the size of the absorption field helps to overcome the restricted permeability.

LeB2—Lexington silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating upland ridgetops
Shape of areas: Broad and irregular
Size of areas: 5 to 1,000 acres
Major uses: Cropland, a few small areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 26 inches, strong brown, mottled, friable silty clay loam
26 to 37 inches, strong brown, mottled, friable silt loam
37 to 60 inches, brown, mottled, friable loam

Inclusions

• Small areas of the moderately well drained Providence and Loring soils in slight depressions and at the heads of drainageways
• Small, severely eroded areas on convex knolls
• Small, nearly level, elongated strips in the center of convex ridges

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid in the lower part
Available water capacity: High
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most locally adapted crops can be grown, and good yields can be attained.
• This soil is susceptible to erosion, which can result in the removal of valuable topsoil.
Suitable management practices:
• No-till planting, contour farming, and stripcropping can help to control erosion and maintain productivity.
Capability class: IIe

Pasture and hayland

Suitability: Well suited

Figure 5.—An area of Lexington silt loam, 2 to 5 percent slopes, eroded. Using winter wheat as a cover crop reduces the hazard of erosion.

General management considerations:
• This soil has no significant limitations for forage production if erosion is controlled (fig. 5).
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Well suited
General management considerations:
• Low strength is a limitation for local roads and streets.
• The permeability in the subsoil is a limitation for septic tank absorption fields.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

• Increasing the size of the absorption field helps to overcome the restricted permeability.

LeB3—Lexington silty clay loam, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating upland ridgetops
Shape of areas: Irregular
Size of areas: 5 to 20 acres
Major uses: Cropland, a few small areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, brown, very friable silty clay loam

Subsoil:
5 to 14 inches, strong brown, mottled, friable silty clay loam
14 to 37 inches, strong brown, mottled, friable silt loam
37 to 46 inches, yellowish red, mottled, friable loam
46 to 60 inches, red, friable sandy loam

Inclusions

• Small areas of the moderately well drained Providence and Loring soils in slight depressions and at the heads of drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid in the lower part
Available water capacity: High
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
Suitable management practices:
• Using conservation practices, such as no-till and contour stripcropping, reduces the hazard of water erosion and runoff.
• Tilth can be improved or maintained by using a cropping system that includes grasses, legumes, or grass-legume mixtures; rotating crops; using minimum tillage; and growing cover crops.
Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• This soil has no significant limitations for forage production if erosion is controlled.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, mockernut hickory, and loblolly pine
General management considerations:
• The main limitation for the management of timber is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Well suited
General management considerations:
• Low strength is a limitation for local roads and streets.
• The permeability in the subsoil is a limitation for septic tank absorption fields.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Increasing the size of the absorption field helps to overcome the restricted permeability.

LeC—Lexington silt loam, 5 to 8 percent slopes

Setting

Landscape position: Undulating upland ridgetops and side slopes
Shape of areas: Irregular
Size of areas: 5 to 40 acres
Major uses: Pasture, woodland

Typical Profile

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

Subsurface layer:
3 to 8 inches, light yellowish brown, very friable silt loam

Subsoil:
8 to 35 inches, strong brown, friable silty clay loam

35 to 50 inches, strong brown, friable clay loam
50 to 60 inches, reddish brown, friable sandy loam

Inclusions

- Small areas of the moderately well drained Providence and Loring soils at the heads of drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid in the lower part
Available water capacity: High
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.

Suitable management practices:
- Using conservation practices, such as no-till and contour stripcropping, reduces the hazard of water erosion and runoff.

Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.

Suitable management practices:
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
- The main limitations for the management of timber on this soil are the hazard of erosion and plant competition.

Suitable management practices:
- Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
- Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Suited
General management considerations:
- Low strength is a limitation for local roads and streets.
- The permeability in the subsoil is a limitation for septic tank absorption fields.
- The slope is a limitation for small commercial buildings.

Suitable management practices:
- If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
- Increasing the size of the absorption field helps to overcome the restricted permeability.
- Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.

LeC3—Lexington silty clay loam, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Undulating upland ridgetops and side slopes
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland, a few small areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, brown, very friable silty clay loam

Subsoil:
5 to 14 inches, strong brown, mottled, friable silty clay loam
14 to 37 inches, strong brown, mottled, friable silt loam
37 to 46 inches, yellowish red, mottled, friable loam
46 to 60 inches, red, friable sandy loam

Inclusions

- Small areas of the moderately well drained Providence and Loring soils in slight depressions and at the heads of drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate in the upper part, moderately rapid in the lower part
Available water capacity: High or moderate
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This soil should not be used continuously as cropland because of the slope and the high erosion potential.
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Tilth can be improved or maintained by using a cropping system that includes grasses, legumes, or grass-legume mixtures; rotating crops; using minimum tillage; and growing cover crops.
Capability class: IVe

Pasture and hayland

Suitability: Well suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
Suitable management practices:
• Stocking rates should be adjusted to prevent overgrazing and to help prevent erosion.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the hazard of erosion, the equipment limitation, and plant competition.
Suitable management practices:
• Access roads and skid trails should be seeded to a permanent plant cover to reduce the hazard of erosion.
• Wheeled and tracked equipment can be used, but timber harvesting operations should be conducted only during dry seasons from midsummer through early fall.
• Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Suited
General management considerations:
• Low strength is a limitation for local roads and streets.
• The permeability in the subsoil and the slope are limitations for septic tank absorption fields.
• The slope is a limitation for small commercial buildings.
Suitable management practices:
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Increasing the size of the septic tank absorption area and placing filter lines on the contour help to overcome the restricted permeability and the slope.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.

LgC—Lexington-Providence silt loams, 5 to 8 percent slopes

Setting

Landscape position: Narrow upland ridgetops and side slopes
Shape of areas: Small and narrow
Size of areas: 5 to 10 acres
Composition of the map unit: 55 percent Lexington soil, 40 percent Providence soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Lexington

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

Subsurface layer:
3 to 8 inches, light yellowish brown, very friable silt loam

Subsoil:
8 to 35 inches, strong brown, friable silty clay loam
35 to 50 inches, strong brown, friable clay loam
50 to 60 inches, reddish brown, friable sandy loam

Providence

Surface layer:
0 to 3 inches, brown, very friable silt loam

Subsurface layer:
3 to 10 inches, yellowish brown, very friable silt loam

Subsoil:
10 to 25 inches, strong brown, friable silty clay loam
25 to 35 inches, yellowish brown, mottled, firm, silt loam fragipan
35 to 41 inches, strong brown, mottled, firm, silt loam fragipan
41 to 60 inches, strong brown, mottled, firm, loam fragipan

Inclusions

• A few small areas of the well drained Smithdale soils in lower positions on side slopes

Important Soil Properties and Features

Drainage class: Lexington—well drained; Providence—moderately well drained
Permeability: Lexington—moderate in the upper part, moderately rapid in the lower part; Providence—moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Lexington—high; Providence—moderate
Soil reaction: Very strongly acid to moderately acid
Flood hazard: None
High water table: Lexington—none; Providence—perched at a depth of 1.5 to 2 feet during winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination in areas of the Providence soil.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices increase soil moisture.
• Planting crops later in the season improves plant germination and early growth in areas of the Providence soil.
Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• A perched water table limits grazing for several days at a time during the winter and early spring in areas of the Providence soil.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Grazing should be deferred until a period from late spring to early fall in areas of the Providence soil.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, shortleaf pine, cherrybark oak, southern red oak, yellow-poplar, and sweetgum
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Lexington—suited; Providence—poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields in areas of the Providence soil.
• The seasonal wetness in areas of the Providence soil is a limitation for dwellings with basements and for small commercial buildings.
• Low strength is a major limitation for local roads and streets.
• The slope is a limitation for small commercial buildings.
Suitable management practices:
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.

LgC3—Lexington-Providence silt loams, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Narrow upland ridgetops and side slopes
Shape of areas: Small and narrow
Size of areas: 5 to 60 acres
Composition of the map unit: 55 percent Lexington soil, 40 percent Providence soil, and 5 percent included soils

Major uses: Woodland, pasture

Typical Profile

Lexington

Surface layer:
0 to 5 inches, brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, mottled, friable silty clay loam
14 to 37 inches, strong brown, mottled, friable silt loam
37 to 46 inches, yellowish red, mottled, friable loam
46 to 60 inches, red, friable sandy loam

Providence

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 18 inches, strong brown, mottled, silty clay loam
18 to 29 inches, strong brown, mottled, firm, silt loam fragipan
29 to 45 inches, strong brown, mottled, firm, silt loam fragipan
45 to 60 inches, yellowish red, mottled, firm, loam fragipan

Inclusions

- A few small areas of the well drained Smithdale soils in lower positions on side slopes
- Numerous small areas of soils in which the fragipan has been incorporated into the plow layer
- Small areas of soils in which gullies form during and after each cropping season

Important Soil Properties and Features

Drainage class: Lexington—well drained; Providence—moderately well drained
Permeability: Lexington—moderate in the upper part, moderately rapid in the lower part; Providence—moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Lexington—moderate to high; Providence—low
Soil reaction: Very strongly acid to moderately acid
Flood hazard: None
High water table: Lexington—none; Providence—perched at a depth of 1.0 foot to 1.5 feet during winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- This unit should not be used continuously as cropland because of the slope and the high erosion potential.

Suitable management practices:
- Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
- Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.

Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
- A perched water table limits grazing for several days at a time during the winter and early spring in areas of the Providence soil.
- Plants may experience moisture stress during dry periods in summer because of the limited available water.

Suitable management practices:
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
- Grazing should be deferred until a period from late spring to early fall in areas of the Providence soil.
- Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices increase soil moisture.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, shortleaf pine, cherrybark oak, southern red oak, yellow-poplar, and sweetgum
General management considerations:
- The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.

Suitable management practices:
- Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
- Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Lexington—suited; Providence—poorly suited
General management considerations:
- A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields in areas of the Providence soil.

• The seasonal wetness in areas of the Providence soil is a limitation for dwellings with basements and for small commercial buildings.
• Low strength is a major limitation for local roads and streets.
• The slope is a limitation for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.

LoA—Loring silt loam, 0 to 2 percent slopes

Setting

Landscape position: Nearly level uplands in the northwestern part of the county
Shape of areas: Irregular
Size of areas: 5 to 60 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 5 inches, brown, very friable silt loam

Subsurface layer:
5 to 9 inches, yellowish brown, very friable silt loam

Subsoil:
9 to 28 inches, strong brown, mottled, friable silty clay loam
28 to 60 inches, strong brown, mottled, firm, silt loam fragipan

Inclusions

• Small areas of the poorly drained Adaton and somewhat poorly drained Kurk soils in slightly concave depressions
• Small, severely eroded areas on slightly higher knolls at the edge of the map unit

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, slow in the fragipan
Available water capacity: Moderate
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most locally adapted crops can be grown, and good yields can be attained.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices can reduce erosion and increase soil moisture.
Capability class: IIw

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber are the equipment limitation, which is a result of a perched water table, and plant competition.
Suitable management practices:
• Logging and planting during dry periods in summer and early fall and using low-pressure ground equipment cause less damage to the soil and help to maintain productivity.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

LoB2—Loring silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating upland ridgetops and stream terraces
Shape of areas: Irregular
Size of areas: 5 to 500 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 7 inches, dark yellowish brown, very friable silt loam

Subsoil:
7 to 15 inches, dark yellowish brown, friable silty clay loam
15 to 22 inches, strong brown, friable silt loam
22 to 45 inches, dark yellowish brown, mottled, firm, silt loam fragipan
45 to 60 inches, brown, mottled, firm, silt loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls
• Intermingled areas of Smithdale soils on narrow ridgetops
• A few areas of poorly drained Adaton soils in slight depressions on stream terraces

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, slow in the fragipan
Available water capacity: Moderate
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.5 to 2.0 feet in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most climatically adapted crops grow well if they are managed to control erosion.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices such as no-till can reduce erosion and increase soil moisture.
• Planting crops later in the spring improves plant germination and early growth.
Capability class: IIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the equipment limitation, which is caused by a perched water table, and plant competition.
Suitable management practices:
• Logging and planting during dry periods in summer and

early fall and using low-pressure ground equipment cause less damage to the soil and help to maintain productivity.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

LoB3—Loring silt loam, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating upland ridgetops and stream terraces
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Cropland, some areas of pasture and hayland

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 16 inches, yellowish brown, friable silty clay loam
16 to 42 inches, strong brown, mottled, firm, silty clay loam fragipan
42 to 60 inches, dark yellowish brown, mottled, firm, silt loam fragipan

Inclusions

• Small areas of the moderately well drained Providence soils on narrow, undulating ridgetops

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, slow in the fragipan
Available water capacity: Low
Soil reaction: Very strongly acid to moderately acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1 to 2 feet in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting crops later in the spring improves plant germination and early growth.
• Planting cover crops, using a crop rotation system, and returning crop residue to the soil increase soil moisture.
Capability class: IIIe

Pasture and hayland

Suitability: Suited
General management considerations:
• Because of the seasonal wetness, only those plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
• Hay yields may be moderate or low during dry years because of the reduced amount of available water.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the equipment limitation, which is caused by a perched water table, and plant competition.
Suitable management practices:
• Logging and planting during dry periods in summer and early fall and using low-pressure ground equipment cause less damage to the soil and help to maintain productivity.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage reduces the wetness around small commercial buildings and dwellings.

LSD—Luverne and Smithdale sandy loams, 8 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops and side slopes
Shape of areas: Narrow
Size of areas: 5 to 100 acres
Composition of the map unit: 55 percent Luverne soil, 40 percent Smithdale soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Luverne

Surface layer:
0 to 2 inches, brown, very friable sandy loam

Subsurface layer:
2 to 9 inches, yellowish brown, very friable sandy loam

Subsoil:
9 to 29 inches, yellowish red, firm sandy clay
29 to 36 inches, yellowish red, friable sandy clay loam

Substratum:
36 to 60 inches, stratified red, friable sandy loam and light gray, firm clay

Smithdale

Surface layer:
0 to 4 inches, dark grayish brown, very friable sandy loam

Subsurface layer:
4 to 14 inches, light yellowish brown, very friable sandy loam

Subsoil:
14 to 51 inches, yellowish red, friable sandy clay loam
51 to 60 inches, red, friable sandy loam

Inclusions

• A few small, severely eroded areas in lower positions on side slopes
• Small, intermingled areas of the well drained Chickasaw and Lexington soils
• Small areas of the moderately well drained Tippah and Providence soils in saddles

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Luverne—moderately slow; Smithdale—moderate
Available water capacity: Luverne—moderate; Smithdale—high
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This unit should not be used continuously as cropland because of the slope and the high erosion potential.

Suitable management practices:
• Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Forage and hay plants that can tolerate droughty conditions, such as improved bermudagrass, should be selected.

Woodland

Suitability: Suited
Trees suitable for planting: Loblolly pine, white oak, hickory, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the equipment limitation and plant competition.
Suitable management practices:
• Wheeled and tracked equipment can be used in the moderately steep areas, but logging and harvesting operations should be conducted only during dry seasons from midsummer through early fall.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope and the permeability of the subsoil are the main limitations for septic tank filter fields.
• Low strength is a major limitation for local roads and streets.
• The slope and the shrink-swell potential are limitations for dwellings and small commercial buildings.
Suitable management practices:
• Increasing the size of the absorption field and placing filter lines on the contour help to overcome the restricted permeability and the slope.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings.
• Backfilling deep cuts with material that has a low shrink-swell potential and diverting runoff away from buildings help to prevent possible structural damage to dwellings.

LSD3—Luverne and Smithdale soils, 8 to 12 percent slopes, severely eroded

Setting

Landscape position: Rolling ridgetops and side slopes
Shape of areas: Narrow
Size of areas: 5 to 100 acres
Composition of the map unit: 55 percent Luverne soil, 40 percent Smithdale soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Luverne

Surface layer:
0 to 4 inches, reddish brown, very friable clay loam

Subsoil:
4 to 18 inches, yellowish red, firm clay
18 to 30 inches, yellowish red, friable sandy clay loam

Substratum:
30 to 60 inches, stratified red, friable sandy loam and light gray, firm clay

Smithdale

Surface layer:
0 to 4 inches, reddish brown, mottled, very friable loam

Subsoil:
4 to 32 inches, yellowish red, friable sandy clay loam
32 to 60 inches, red, very friable sandy loam

Inclusions

• Small, intermingled areas of the well drained Chickasaw and Lexington soils
• Small areas of the moderately well drained Tippah and Providence soils in saddles

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Luverne—moderately slow; Smithdale—moderate
Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope and the high erosion potential are major limitations for use as cropland.
Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• The limited available water reduces hay yields during dry periods in summer.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Forage and plants that can tolerate droughty conditions, such as improved bermudagrass, should be selected.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: Loblolly pine, white oak, hickory, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the equipment limitation and plant competition.
Suitable management practices:
• Wheeled and tracked equipment can be used in the moderately steep areas, but logging and harvesting operations should be conducted only during dry seasons from midsummer through early fall.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope and the permeability of the subsoil are the main limitations for septic tank filter fields.
• Low strength is a major limitation for local roads and streets.
• The slope and the shrink-swell potential are limitations for dwellings and small commercial buildings.
Suitable management practices:
• Increasing the size of the absorption field or placing filter lines on the contour helps to overcome the restricted permeability and the slope.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings or dwellings.
• Backfilling deep cuts with material that has a low shrink-swell potential and diverting runoff away from buildings help to prevent possible structural damage to dwellings.

LSE3—Luverne and Smithdale soils, 12 to 25 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 1,000 acres
Composition of the map unit: 55 percent Luverne soil, 40 percent Smithdale soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Luverne

Surface layer:
0 to 4 inches, reddish brown, very friable clay loam

Subsoil:
4 to 18 inches, yellowish red, firm clay
18 to 30 inches, yellowish red, friable sandy clay loam

Substratum:
30 to 60 inches, stratified red, friable sandy loam and light gray, firm clay

Smithdale

Surface layer:
0 to 4 inches, reddish brown, mottled, very friable loam

Subsoil:
4 to 32 inches, yellowish red, friable sandy clay loam
32 to 60 inches, red, very friable sandy loam

Inclusions

• Small, intermingled areas of the well drained Chickasaw and Lexington soils
• Small areas of the moderately well drained Tippah and Providence soils on shoulder slopes

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Luverne—moderately slow; Smithdale—moderate
Available water capacity: Moderate
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• Areas of this map unit should not be used as cropland because of the slope, the high potential for runoff and erosion, and the limited available water capacity.
Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• The slope, the high runoff rate, and the hazard of erosion are limitations for pasture management.
• A permanent vegetative cover is needed to prevent erosion.
• The high runoff rate can cause a moisture deficit in late summer, and stands of less hardy plants may suffer from moisture stress.
Suitable management practices:
• Drought-tolerant forage plants, such as improved bermudagrass or sericea lespedeza, are among the adapted forage plants.
• Reseeding the pasture may be necessary if the plant cover does not provide a adequate stand of desirable species for forage production and erosion control.
• Stocking rates should be adjusted, especially in steeper areas, to prevent overgrazing and to help prevent erosion.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion, the equipment limitation, and plant competition.
• Steep yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Wheeled and tracked equipment can be used in the moderately steep areas, but more specialized harvesting methods may be required in the steeper areas.
• Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope and the permeability of the subsoil are the main limitations for septic tank filter fields.
• Low strength is a major limitation for local roads and streets.
• The slope and the shrink-swell potential are limitations for dwellings and small commercial buildings.
Suitable management practices:
• Increasing the size of the absorption field and placing filter lines on the contour help to overcome the restricted permeability and the slope.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings or dwellings.
• Backfilling deep cuts with material that has a low shrink-swell potential and diverting runoff away from buildings help to prevent possible structural damage to dwellings.

LSF—Luverne and Smithdale sandy loams, 25 to 45 percent slopes

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 5 to 2,000 acres
Composition of the map unit: 55 percent Luverne soil, 40 percent Smithdale soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Luverne

Surface layer:
0 to 2 inches, brown, very friable sandy loam

Subsurface layer:
2 to 9 inches, yellowish brown, very friable sandy loam

Subsoil:
9 to 29 inches, yellowish red, firm sandy clay
29 to 36 inches, yellowish red, friable sandy clay loam

Substratum:
36 to 60 inches, stratified red, friable sandy loam and light gray, firm clay

Smithdale

Surface layer:
0 to 2 inches, dark grayish brown, very friable sandy loam

Subsurface layer:
2 to 7 inches, light yellowish brown, very friable sandy loam

Subsoil:
7 to 20 inches, yellowish red, friable clay loam
20 to 40 inches, yellowish red, friable sandy clay loam
40 to 60 inches, red, very friable sandy loam

Inclusions

- Small, intermingled areas of the well drained Chickasaw and Lexington soils
- Small areas of the moderately well drained Tippah and Providence soils on shoulder slopes

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Luverne—moderately slow; Smithdale—moderate
Available water capacity: Moderate
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- Areas of this map unit should not be used as cropland because of the slope, the high potential for runoff and erosion, and the limited available water capacity.

Capability class: VIIe

Pasture and hayland

Suitability: Unsuited
General management considerations:
- The slope, the high runoff rate, and the hazard of erosion are the main limitations for pasture and hayland management.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
- The main limitations for the management of timber in this map unit are the hazard of erosion, the equipment limitation, and plant competition.

Suitable management practices:
- Steep yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
- Wheeled and tracked equipment can be used in the moderately steep areas, but more specialized harvesting methods may be required in the steeper areas.
- Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This unit is poorly suited to residential and commercial uses because of the slope, the permeability of the subsoil, the shrink-swell potential, and the hazard of erosion.

Nu—Nugent loamy sand, occasionally flooded

Setting

Landscape position: Narrow flood plains along secondary streams
Slope range: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres
Major uses: Cropland, a few areas of pasture

Typical Profile

Surface layer:
0 to 6 inches, yellowish brown, very friable loamy sand

Substratum:
6 to 9 inches, strong brown, loose coarse sand
9 to 15 inches, stratified brown, friable silt loam and very pale brown, loose sand
15 to 32 inches, strong brown, loose sand
32 to 60 inches, stratified strong brown and dark brown, loose sand

Inclusions

- Small areas of the moderately well drained Iuka and Chenneby soils in slight depressions adjacent to uplands
- Narrow areas of the well drained Ochlockonee soils along natural levees

Important Soil Properties and Features

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Low

Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flooding: Occasional for extremely brief to very brief periods in winter and early spring
High water table: Seasonal, at a depth of 3.5 to 6 feet, in winter and early spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• Seasonal flooding can limit the production and harvest of some crops.
• Droughtiness and nutrient leaching are management concerns for the production of crops.
Suitable management practices:
• Because of the hazard of flooding early in spring, planting short-season annuals, such as soybeans or grain sorghum, is recommended.
• Planting cover crops and using a no-till conservation tillage system increase the moisture in the soil.
• Applications of lime and fertilizer are needed to maintain productivity.
Capability class: IIIs

Pasture and hayland

Suitability: Suited
General management considerations:
• Droughtiness and low fertility are management concerns for hayland and pasture.
• Short periods of flooding can damage plants.
Suitable management practices:
• Only those hay and pasture plants that are drought-tolerant, such as improved bermudagrass, should be selected.
• Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Suited
Trees suitable for planting: Cherrybark oak, eastern cottonwood, sweetgum, loblolly pine, and yellow-poplar
General management considerations:
• The main limitations for the management of timber are the equipment limitation and seedling mortality.
Suitable management practices:
• Tracked vehicles may be needed for harvesting and planting operations because of the deep, sandy texture of the soil.
• Planting hardier seedlings and maintaining a cover of mulch increase the seedling survival rate.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to residential and commercial uses because of the flooding.
Suitable management practices:
• Dwellings, small commercial buildings, and roads and streets should be located in higher areas that are not subject to flooding.

Oc—Ochlockonee silt loam, rarely flooded

Setting

Landscape position: Flood plains along secondary streams
Slope range: 0 to 3 percent
Shape of areas: Long and narrow
Size of areas: 5 to 400 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 8 inches, brown, very friable silt loam

Substratum:
8 to 14 inches, stratified strong brown, loose loamy sand and pale brown, very friable silt loam
14 to 18 inches, stratified brown, pale brown, and strong brown, very friable silt loam
18 to 30 inches, stratified brown, friable silt loam and pale brown, very friable sandy loam
30 to 43 inches, yellowish red, mottled, friable fine sandy loam
43 to 60 inches, yellowish red, mottled, very friable sandy loam

Inclusions

• A few small areas of the moderately well drained Iuka and somewhat poorly drained Chenneby and Enville soils in slight depressions
• Areas of the excessively drained Nugent soils along old creek channels and on natural levees

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate to high

Figure 6.—Soybeans in an area of Ochlockonee silt loam, rarely flooded. This soil is well suited for use as cropland.

Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flooding: Rare for extremely brief to very brief periods in winter and early spring
High water table: Seasonal, at a depth of 3 to 5 feet, in winter and early spring

Use and Management

Cropland

Suitability: Well suited (fig. 6)
General management considerations:
- Most locally adapted crops can be grown, and good yields can be attained.
- Small grains can be damaged by the flooding.

Suitable management practices:
- Planting crops later in spring minimizes the damage to crops by flooding.
- Small grains should be planted in the higher areas that are not subject to flooding.

Capability class: I

Pasture and hayland

Suitability: Well suited
General management considerations:
- Flooding does not limit the production of forage or hay in most years.

Suitable management practices:
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Black walnut, loblolly pine, yellow-poplar, American sycamore, sweetgum, and cherrybark oak
General management considerations:
• The main limitation for the management of timber on this soil is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to all residential and commercial uses because of the hazard of flooding.
Suitable management practices:
• The hazard of flooding can be reduced by locating dwellings, commercial structures, and roads and streets above the expected flood level.

PrB2—Providence silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating upland ridgetops and stream terraces
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 7 inches, dark yellowish brown, very friable silt loam

Subsoil:
7 to 20 inches, strong brown, friable silty clay loam
20 to 37 inches, strong brown, mottled, firm, silt loam fragipan
37 to 47 inches, brown, mottled, firm, loam fragipan
47 to 60 inches, reddish brown, mottled, firm, sandy loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls
• Intermingled areas of Smithdale soils on narrow ridgetops and shoulder slopes
• A few areas of the somewhat poorly drained Kurk and poorly drained Adaton soils in slight depressions on stream terraces

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Moderate
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.5 to 2.0 feet in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most climatically adapted crops grow well if they are managed to control erosion.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices such as no-till can reduce erosion and increase soil moisture.
• Planting crops later in the spring improves plant germination and early growth.
Capability class: IIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber on this soil is the plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and

applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

PrB3—Providence silty clay loam, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating ridgetops on uplands and stream terraces
Shape of areas: Irregular
Size of areas: 5 to 200 acres
Major uses: Cropland, some areas of pasture and hayland

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, very friable silty clay loam

Subsoil:
5 to 18 inches, strong brown, mottled, silty clay loam
18 to 29 inches, strong brown, mottled, firm, silt loam fragipan
29 to 45 inches, strong brown, mottled, firm, silt loam fragipan
45 to 60 inches, yellowish red, mottled, firm, loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls
• Intermingled areas of Smithdale soils on narrow ridgetops and shoulder slopes
• A few areas of the somewhat poorly drained Kurk and poorly drained Adaton soils in slight depressions on stream terraces

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Low
Soil reaction: Very strongly acid to moderately acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.0 foot to 1.5 feet in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting crops later in the spring improves plant germination and early growth.
• Planting cover crops, using a crop rotation system, and returning crop residue to the soil increase soil moisture.
Capability class: IIIe

Pasture and hayland

Suitability: Suited
General management considerations:
• Because of the seasonal wetness, only those plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
• Hay yields may be moderate or low during dry years because of the reduced amount of available water.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber on this soil is the plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage reduces the wetness around small commercial buildings and dwellings.

PrC—Providence silt loam, 5 to 8 percent slopes

Setting

Landscape position: Undulating upland ridgetops and stream terraces
Shape of areas: Irregular
Size of areas: 10 to 30 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 3 inches, brown, very friable silt loam

Subsurface layer:
3 to 10 inches, yellowish brown, very friable silt loam

Subsoil:
10 to 25 inches, strong brown, friable silty clay loam
25 to 35 inches, yellowish brown, mottled, firm, silt loam fragipan
35 to 41 inches, strong brown, mottled, firm, silt loam fragipan
41 to 60 inches, strong brown, mottled, firm, loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls
• Intermingled areas of the well drained Smithdale soils on shoulder slopes

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Moderate
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: Perched at a depth of 1.5 to 2.0 feet in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Most climatically adapted crops grow well if they are managed to control erosion.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices such as no-till can reduce erosion and increase soil moisture.
• Planting crops later in the spring improves plant germination and early growth.
Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.

• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

PrC3—Providence silty clay loam, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Undulating upland ridgetops and side slopes and stream terraces
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Cropland, woodland

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, very friable silty clay loam

Subsoil:
5 to 18 inches, strong brown, mottled silty clay loam
18 to 29 inches, strong brown, mottled, firm, silt loam fragipan
29 to 45 inches, strong brown, mottled, firm, silt loam fragipan
45 to 60 inches, yellowish red, mottled, firm, loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls
• Intermingled areas of the well drained Smithdale soils on shoulder slopes

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Low
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1 to 1.5 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This soil should not be used continuously as cropland because of the slope and the high erosion potential.
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices increase soil moisture.
• Planting crops later in the season increases plant germination and early growth.
Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
• The limited available water reduces hay yields during dry years.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The seasonal wetness is a limitation for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

PrD—Providence silt loam, 8 to 12 percent slopes

Setting

Landscape position: Rolling upland ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 50 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 3 inches, brown, very friable silt loam

Subsurface layer:
3 to 10 inches, yellowish brown, very friable silt loam

Subsoil:
10 to 25 inches, strong brown, friable silty clay loam
25 to 35 inches, yellowish brown, mottled, firm, silt loam fragipan
35 to 41 inches, strong brown, mottled, firm, silt loam fragipan
41 to 60 inches, strong brown, mottled, firm, loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on small convex knolls on ridgetops
• Intermingled areas of the well drained Smithdale and Lucy soils on hillsides
• A few small, severely eroded areas that are adjacent to drainageways

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Moderate
Soil reaction: Moderately acid to very strongly acid
Flood hazard: None
High water table: Perched at a depth of 1.5 to 2.0 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This soil should not be used continuously as cropland because of the slope and the high erosion potential.

Suitable management practices:
• Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
• A perched water table limits grazing for several days at a time during the winter and early spring in areas of the Providence soil.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Grazing should be deferred until a period from late spring to early fall in areas of the Providence soil.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, loblolly pine, and eastern redcedar
General management considerations:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength and the slope are major limitations for local roads and streets.
• The seasonal wetness and the slope are limitations for dwellings with basements and for small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields.
• Increasing the size of the absorption field, placing filter lines on the contour, and adding suitable fill material on the surface help to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

PrD3—Providence silty clay loam, 8 to 12 percent slopes, severely eroded

Setting

Landscape position: Strongly sloping upland side slopes
Shape of areas: Irregular
Size of areas: 5 to 25 acres
Major uses: Woodland, a few areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, very friable silty clay loam

Subsoil:
5 to 18 inches, strong brown, mottled silty clay loam
18 to 29 inches, strong brown, mottled, firm, silt loam fragipan
29 to 45 inches, strong brown, mottled, firm, silt loam fragipan
45 to 60 inches, yellowish red, mottled, firm, loam fragipan

Inclusions

• Intermingled areas of the well drained Smithdale and Lucy soils on hillsides
• Areas of soils in which widely spaced gullies have truncated steeper hillsides
• Numerous small areas in which the surface layer has been removed and the fragipan been incorporated into the plow layer

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, slow in the fragipan
Available water capacity: Low
Soil reaction: Moderately acid to very strongly acid except in areas that have been limed
Flood hazard: None

High water table: Perched at a depth of 1 foot to 1.5 feet in winter and early spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope, the high erosion potential, the rooting depth, and the low available water are major limitations for use as cropland.
Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
• The low amount of available water causes the soil to be droughty and reduces the yields.
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
Suitable management practices:
• Forage plants that can tolerate droughty conditions, such as improved bermudagrass, should be selected.
• Stocking rates should be adjusted to prevent overgrazing and to help prevent erosion.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, loblolly pine, and eastern redcedar
General management considerations:
• The main limitations for the management of timber on this soil are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope, the seasonally perched water table, and the restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength is a major limitation for local roads and streets.
• The slope and the seasonal wetness are limitations for dwellings and small commercial buildings.
Suitable management practices:
• Using subsurface drains diverts water or lowers the water table around areas to be used for septic tank filter fields and dwellings with basements.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct dwellings or small commercial buildings.

RB—Rosebloom and Bibb soils, frequently flooded

Setting

Landscape position: Flood plains along the Hatchie River and major tributaries
Shape of areas: Long and narrow
Size of areas: 50 to 1,200 acres
Composition of the map unit: 60 percent Rosebloom soil, 30 percent Bibb soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Rosebloom

Surface layer:
0 to 7 inches, brown, mottled, very friable silty clay loam

Subsoil:
7 to 25 inches, light brownish gray, mottled, friable silty clay loam

Substratum:
25 to 40 inches, gray, mottled, friable silty clay loam
40 to 60 inches, light gray, mottled, friable silty clay loam

Bibb

Surface layer:
0 to 4 inches, brown, mottled, very friable silt loam

Substratum:
4 to 14 inches, olive gray, mottled, very friable silt loam
14 to 22 inches, stratified olive gray, mottled, friable sandy loam and yellowish brown, loose loamy sand
22 to 60 inches, stratified olive gray, mottled, friable silt loam and loose loamy sand

Inclusions

• A few small areas of the moderately well drained Iuka soils on natural levees
• Intermingled areas of the clayey Urbo soils in the southeastern part of the county

Important Soil Properties and Features

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flooding: Frequent for long to very long periods in winter and spring; some areas ponded for several months
High water table: Seasonal, at the surface to a depth of 1 foot, in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• Seasonal wetness and frequent flooding limit the production and harvest of crops.
Capability class: Vw

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• This map unit is poorly suited to pasture and hay because of the frequent flooding and the seasonal wetness.
Suitable management practices:
• In some areas of the unit where the flooding is less severe, water-tolerant plants, such as tall fescue and white clover, can be grown for pasture.

Woodland

Suitability: Suited to water-tolerant trees; provides excellent habitat for wetland wildlife
Trees suitable for planting in areas that are flooded for short periods: American sycamore, sweetgum, willow oak, swamp chesnut oak, water oak, green ash, Nuttall oak, and pin oak
Trees suitable for planting in areas that have standing water for several months: Baldcypress, sweetgum, green ash, and swamp tupelo
General management considerations:
• The main limitations for the management of timber in this unit are seedling mortality, the equipment limitation, and plant competition.
Suitable management practices:
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• This map unit is unsuited to all residential and commercial uses because of the frequent flooding and seasonal wetness.

RO—Rosebloom and Bibb soils, occasionally flooded

Setting

Landscape position: Flood plains along the Hatchie River and major tributaries
Shape of areas: Long and narrow
Size of areas: 10 to 1,000 acres
Composition of the map unit: 60 percent Rosebloom soil, 30 percent Bibb soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Rosebloom

Surface layer:
0 to 7 inches, brown, mottled, very friable silty clay loam

Subsoil:
7 to 25 inches, light brownish gray, mottled, friable silty clay loam

Substratum:
25 to 40 inches, gray, mottled, friable silty clay loam
40 to 60 inches, light gray, mottled, friable silty clay loam

Bibb

Surface layer:
0 to 4 inches, brown, mottled, very friable silt loam

Substratum:
4 to 14 inches, olive gray, mottled, very friable silt loam
14 to 22 inches, stratified olive gray, mottled, friable sandy loam and yellowish brown, loose loamy sand
22 to 60 inches, stratified olive gray, mottled, friable silt loam and loose loamy sand

Inclusions

• A few small areas of the moderately well drained Iuka soils on natural levees

• Intermingled areas of the clayey Urbo soils in the southeastern part of the county

Important Soil Properties and Features

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flooding: Occasional for long to very long periods in winter and spring
High water table: Seasonal, at the surface to a depth of 1 foot, in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The excessive wetness and the flooding limit the production and harvest of crops.
Suitable management practices:
• A few areas that have been previously drained and are protected from flooding by levees can be planted to late-season annual crops, such as soybeans or grain sorghum.
Capability class: IIIw

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• This map unit is poorly suited to pasture and hay because of the flooding and the seasonal wetness.
Suitable management practices:
• In some areas of the unit where the flooding is less severe, water-tolerant plants, such as tall fescue and white clover, can be grown for pasture.

Woodland

Suitability: Suited to water-tolerant trees; provides excellent habitat for wetland wildlife
Trees suitable for planting in areas that are flooded for short periods: American sycamore, sweetgum, willow oak, Nuttall oak, swamp chesnut oak, green ash, and pin oak
Trees suitable for planting in areas that have standing water for several months: Baldcypress, sweetgum, green ash, and swamp tupelo
General management considerations:
• The main limitations for the management of timber in this unit are seedling mortality, the equipment limitation, and plant competition.
Suitable management practices:
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• This map unit is unsuited to all residential and commercial uses because of the flooding and excessive wetness.

SaE3—Smithdale loam, 12 to 25 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Shape of areas: Irregular
Size of areas: 10 to 1,000 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 4 inches, reddish brown, mottled, very friable loam

Subsoil:
4 to 32 inches, yellowish red, friable sandy clay loam
32 to 60 inches, red, very friable sandy loam

Inclusions

• A few small, intermingled areas of the well drained Lexington, Luverne, and Lucy soils on dissected hillsides
• Areas of the moderately well drained Providence soils on shoulder slopes
• Small narrow strips of the well drained Ochlockonee and moderately well drained Iuka soils in drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope, the high erosion potential, and the high runoff rate are major limitations for use as cropland.
Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• The slope, the high runoff rate, and the hazard of erosion are limitations for pasture management.
• A permanent vegetative cover is needed to prevent erosion.
• The high runoff rate can cause a moisture deficit in late summer, and stands of less hardy plants may suffer from moisture stress.
Suitable management practices:
• Selecting forage plants that can tolerate droughty conditions, such as improved bermudagrass or sericea lespedeza, is recommended.
• Reseeding the pasture may be necessary if the plant cover does not provide a adequate stand of desirable species for forage production and erosion control.
• Stocking rates should be adjusted, especially in steeper areas, to prevent overgrazing and to help prevent erosion.

Woodland

Suitability: Suited
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber on this soil are the equipment limitation and the hazard of erosion.
• Steep yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Wheeled and tracked equipment can be used in the moderately steep areas, but more specialized harvesting methods may be required in the steeper areas.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope is a major limitation for most residential and commercial uses.
Suitable management practices:
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings or dwellings.
• Placing septic tank filter fields in the less sloping areas and installing filter lines on the contour help to overcome the slope.
• Planning and designing local roads and streets in the less sloping areas and placing them on the contour reduce the construction costs and minimize the hazard of erosion.

SeD—Smithdale and Lexington soils, 8 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops and side slopes
Shape of areas: Narrow
Size of areas: 5 to 100 acres
Composition of the map unit: 55 percent Smithdale soil, 40 percent Lexington soil, and 5 percent included soils
Major use: Woodland

Typical Profile

Smithdale

Surface layer:
0 to 4 inches, dark grayish brown, very friable sandy loam

Subsurface layer:
4 to 14 inches, light yellowish brown, very friable sandy loam

Subsoil:
14 to 51 inches, yellowish red, friable sandy clay loam
51 to 60 inches, red, friable sandy loam

Lexington

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

Subsurface layer:
3 to 8 inches, light yellowish brown, very friable silt loam

Subsoil:
8 to 35 inches, strong brown, friable silty clay loam
35 to 50 inches, strong brown, friable clay loam
50 to 60 inches, reddish brown, friable sandy loam

Inclusions

• A few small, severely eroded areas of soils in lower positions on side slopes and shoulder slopes
• Small, intermingled areas of the moderately well drained Providence soils

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Smithdale—moderate; Lexington—moderate in the upper part, moderately rapid in the lower part
Available water capacity: High
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This unit should not be used continuously as cropland because of the slope and the high erosion potential.
Suitable management practices:
• Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The slope and the permeability of the subsoil are limitations for septic tank filter fields.
• The slope is a limitation for dwellings and small commercial buildings.
• The slope and low strength are limitations for local roads and streets.
Suitable management practices:
• Increasing the size of the absorption field and placing filter lines on the contour help to overcome the restricted permeability and the slope.
• Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings or dwellings.
• If the soil is to be used as a base for roads and streets, constructing roads on the contour in less sloping areas and mixing the upper part of the soil with coarser textured material will increase the soil's strength and stability.

SeD3—Smithdale and Lexington soils, 8 to 12 percent slopes, severely eroded

Setting

Landscape position: Rolling ridgetops and side slopes
Shape of areas: Irregular and long and narrow
Size of areas: 5 to 150 acres
Composition of the map unit: 55 percent Smithdale soil, 40 percent Lexington soil, and 5 percent included soils
Major uses: Woodland, some areas of pasture

Typical Profile

Smithdale

Surface layer:
0 to 4 inches, reddish brown, mottled, very friable loam

Subsoil:
4 to 32 inches, yellowish red, friable sandy clay loam
32 to 60 inches, red, very friable sandy loam

Lexington

Surface layer:
0 to 5 inches, brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, mottled, friable silty clay loam
14 to 37 inches, strong brown, mottled, friable silt loam
37 to 46 inches, yellowish red, mottled, friable loam
46 to 60 inches, red, friable sandy loam

Inclusions

• Small, intermingled areas of the moderately well drained Providence soils in slight depressions on narrow ridgetops
• Areas of the well drained Luverne and Lucy soils in lower positions on hillsides

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Smithdale—moderate; Lexington—moderate in the upper part, moderately rapid in the lower part
Available water capacity: High
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Figure 7.—Tall fescue in an area of Smithdale and Lexington soils, 8 to 12 percent slopes, severely eroded. The total acreage of pasture and hayland is increasing in Hardeman County.

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope and the high erosion potential are major limitations for use as cropland.
Capability class: VIe

Pasture and hayland

Suitability: Suited (fig. 7)
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Suited
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited

General management considerations:
- The slope and the permeability of the subsoil are limitations for septic tank filter fields.
- The slope is a limitation for dwellings and small commercial buildings.
- The slope and low strength are limitations for local roads and streets.

Suitable management practices:
- Increasing the size of the absorption field and placing filter lines on the contour help to overcome the restricted permeability and the slope.
- Proper building designs and construction costs are the major considerations on sites that need to be excavated or filled to construct small commercial buildings or dwellings.
- If the soil is to be used as a base for roads and streets, constructing roads on the contour in less sloping areas and mixing the upper part of the soil with coarser textured material will increase the soil's strength and stability.

SMF—Smithdale and Lucy soils 20 to 45 percent slopes

Setting

Landscape position: Steep hillsides
Shape of areas: Irregular
Size of areas: 5 to 700 acres
Composition of the map unit: 55 percent Smithdale soil, 35 percent Lucy soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Smithdale

Surface layer:
0 to 4 inches, dark grayish brown, very friable sandy loam

Subsurface layer:
4 to 14 inches, light yellowish brown, very friable sandy loam

Subsoil:
14 to 51 inches, yellowish red, friable sandy clay loam
51 to 60 inches, red, friable sandy loam

Lucy

Surface layer:
0 to 4 inches, dark grayish brown, very friable loamy sand

Subsurface layer:
4 to 18 inches, brown, very friable loamy sand
18 to 33 inches, strong brown, loose loamy sand

Subsoil:
33 to 44 inches, yellowish red, friable sandy clay loam
44 to 60 inches, yellowish red, mottled, friable sandy clay loam

Inclusions

- A few small, severely eroded areas along narrow drainageways
- Small areas of the moderately well drained Providence soils on shoulder slopes
- Small, intermingled areas of the well drained Luverne soils on hillsides
- Narrow strips of the moderately well drained Iuka and well drained Ochlockonee soils along drainageways

Important Soil Properties and Features

Drainage class: Well drained
Permeability: Smithdale—moderate; Lucy—rapid in the upper part, moderate in the lower part
Available water capacity: Smithdale—high or moderate; Lucy—low
Soil reaction: Very strongly acid or strongly acid
Flood hazard: None
High water table: None

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
- This unit is unsuited to row crops because of the slope, the limited available water, and the high potential for erosion.

Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
- The low amount of available water causes the soil to be droughty and reduces the yields.
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.

Suitable management practices:
- Forage plants that can tolerate droughty conditions, such as improved bermudagrass and sericea lespedeza, should be selected.
- Stocking rates should be adjusted to prevent overgrazing and to help prevent erosion.
- Pasture in areas that have more than 30 percent slopes may be too steep for the safe operation of farm equipment unless access roads are built on the contour for broadcasting seed, fertilizer, and herbicide.

Woodland

Suitability: Suited to drought-tolerant species
Trees suitable for planting: White oak, chesnut oak, loblolly

pine, shortleaf pine, Virginia pine, and eastern redcedar

General management considerations:

• The main limitations for the management of timber in this map unit are the hazard of erosion, the equipment limitation, seedling mortality, and plant competition.

Suitable management practices:

• Logging roads, skid trails, yarding paths, and landings should be seeded to a permanent plant cover to reduce the hazard of erosion.

• Special planning and equipment are needed for harvesting and planting operations because of the sandy surface layer.

• Planting drought-tolerant species on east- and north-facing slopes provides the seedlings with more soil moisture and thus increases the seedling survival rate.

• Site preparation, such as burning, applying herbicide, and girdling or cutting unwanted trees, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited

General management considerations:

• The slope is a major limitation for all residential and commercial uses.

SpD—Smithdale-Providence complex, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops and side slopes

Shape of areas: Narrow

Size of areas: 5 to 100 acres

Composition of the map unit: 50 percent Smithdale soil, 40 percent Providence soil, and 10 percent included soils

Major use: Woodland

Typical Profile

Smithdale

Surface layer:

0 to 4 inches, dark grayish brown, very friable sandy loam

Subsurface layer:

4 to 14 inches, light yellowish brown, very friable sandy loam

Subsoil:

14 to 51 inches, yellowish red, friable sandy clay loam

51 to 60 inches, red, friable sandy loam

Providence

Surface layer:

0 to 3 inches, brown, very friable silt loam

Subsurface layer:

3 to 10 inches, yellowish brown, very friable silt loam

Subsoil:

10 to 25 inches, strong brown, friable silty clay loam

25 to 35 inches, yellowish brown, mottled, firm, silt loam fragipan

35 to 41 inches, strong brown, mottled, firm, silt loam fragipan

41 to 60 inches, strong brown, mottled, firm, loam fragipan

Inclusions

• A few small, severely eroded areas in lower positions on side slopes and shoulder slopes

• Small areas of the well drained Lexington soils on slight knolls on narrow ridgetops

Important Soil Properties and Features

Drainage class: Smithdale—well drained; Providence—moderately well drained

Permeability: Smithdale—moderate; Providence—moderate above the fragipan, moderately slow in the fragipan

Available water capacity: Smithdale—high or moderate; Providence—moderate

Soil reaction: Smithdale—very strongly acid or strongly acid; Providence—very strongly acid to moderately acid

Flood hazard: None

High water table: Smithdale—none; Providence—perched at a depth of 1.5 to 2 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited

General management considerations:

• This unit should not be used continuously as cropland because of the slope and the high erosion potential.

Suitable management practices:

• Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.

• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.

Capability class: IVe

Pasture and hayland

Suitability: Suited

General management considerations:

• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.

• Plants may experience moisture stress during dry periods in summer because of the limited available water.

Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Suited
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength and the slope are major limitations for local roads and streets.
• The seasonal wetness and the slope are limitations for dwellings with basements and small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields.
• Increasing the size of the absorption field, placing filter lines on the contour, and adding suitable fill material on the surface help to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

SpD3—Smithdale-Providence complex, 5 to 12 percent slopes, severely eroded

Setting

Landscape position: Rolling ridgetops and side slopes
Shape of areas: Narrow
Size of areas: 5 to 150 acres
Composition of the map unit: 50 percent Smithdale soil, 40 percent Providence soil, and 10 percent included soils
Major uses: Woodland, some areas of pasture

Typical Profile

Smithdale

Surface layer:
0 to 4 inches, reddish brown, mottled, very friable loam

Subsoil:
4 to 32 inches, yellowish red, friable sandy clay loam
32 to 60 inches, red, very friable sandy loam

Providence

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 18 inches, strong brown, mottled, silty clay loam
18 to 29 inches, strong brown, mottled, firm, silt loam fragipan
29 to 45 inches, strong brown, mottled, firm, silt loam fragipan
45 to 60 inches, yellowish red, mottled, firm, loam fragipan

Inclusions

• Small areas of the well drained Lexington soils on slight knolls on narrow ridgetops
• A few small areas of the well drained Luverne and Chickasaw soils in lower positions on side slopes

Important Soil Properties and Features

Drainage class: Smithdale—well drained; Providence—moderately well drained
Permeability: Smithdale—moderate; Providence—moderate above the fragipan, moderately slow in the fragipan
Available water capacity: Smithdale—moderate; Providence—low
Soil reaction: Smithdale—very strongly acid or strongly acid; Providence—very strongly acid to moderately acid
Flood hazard: None
High water table: Smithdale—none; Providence—perched at a depth of 1 to 1.5 feet in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The slope, the high erosion potential, the rooting depth, and the low available water are major limitations for use as cropland.
Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• Plants may experience moisture stress during dry periods in summer because of the limited available water.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Suited
Trees suitable for planting: Loblolly pine, shortleaf pine, white oak, chesnut oak, and eastern redcedar
General management considerations:
• The main limitations for the management of timber in this map unit are the hazard of erosion and plant competition.
Suitable management practices:
• Yarding paths, skid trails, fire breaks, and landings are subject to rilling and gullying unless they are provided with adequate water bars, are protected by plant cover, or both.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• A seasonally perched water table and restricted permeability in the subsoil are major limitations for septic tank absorption fields.
• Low strength and the slope are major limitations for local roads and streets.
• The seasonal wetness and the slope are limitations for dwellings with basements and small commercial buildings.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields.
• Increasing the size of the absorption field, placing filter lines on the contour, and adding suitable fill material on the surface help to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.
• Providing drainage and diverting runoff away from foundations reduce the wetness around small commercial buildings and dwellings.

St—Steens loam

Setting

Landscape position: Low stream terraces
Slope range: 0 to 2 percent
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 7 inches, brown, mottled, very friable loam

Subsoil:
7 to 22 inches, mottled yellowish brown and light brownish gray, friable sandy clay loam
22 to 39 inches, light brownish gray, mottled, friable sandy clay loam
39 to 49 inches, light brownish gray, mottled, friable clay loam
49 to 60 inches, light brownish gray, mottled, friable sandy clay loam

Inclusions

• A few small areas of the poorly drained Adaton soils in slight depressions
• Areas of the moderately well drained Providence soils in slightly higher positions adjacent to uplands

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Seasonal, at a depth of 1 to 2 feet, in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Seasonal wetness limits the production and harvest of some crops.
Suitable management practices:
• Because of the wetness early in spring, planting late-season annuals, such as soybeans or grain sorghum, is recommended.
Capability class: IIw

Pasture and hayland

Suitability: Well suited
General management considerations:
• Only those hay and pasture plants that can tolerate short periods of wetness should be selected.
• The seasonal high water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Cherrybark oak, yellow-poplar, sweetgum, water oak, American sycamore, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the equipment limitation and plant competition.
Suitable management practices:
• The seasonal high water table restricts the use of equipment for planting and harvesting operations to dry periods from midsummer through early fall.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• The seasonal wetness, the moderately slow permeability, and the low strength are limitations for most residential and commercial uses.
Suitable management practices:
• Using subsurface drains or open ditches lowers the water table around areas to be used for septic tank filter fields, dwellings, and small commercial buildings.
• Increasing the size of the absorption field or adding suitable fill material on the surface helps to overcome the restricted permeability.
• If the soil is to be used as a base for roads and streets, mixing the upper part with coarser textured material will increase the soil's strength and stability.

ThB2—Tippah silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating ridgetops
Shape of areas: Irregular
Size of areas: 5 to 100 acres
Major use: Cropland

Typical Profile

Surface layer:
0 to 7 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
7 to 17 inches, yellowish red, friable silty clay loam
17 to 22 inches, strong brown, mottled, friable silty clay loam
22 to 28 inches, strong brown, mottled, friable silty clay loam
28 to 42 inches, mottled dark yellowish brown and grayish brown, firm silty clay
42 to 60 inches, mottled strong brown, gray, and yellowish brown, firm silty clay

Inclusions

• A few small areas of the somewhat poorly drained Falkner and Wilcox soils in slight depressions and at the heads of drainageways
• A few intermingled areas of moderately well drained soils that have a fragipan

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, slow in the lower part
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Well suited
General management considerations:
• Most climatically adapted crops grow well if they are managed to control erosion.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices such as no-till can reduce erosion and increase soil moisture.
• Planting crops later in the spring improves plant germination and early growth.
Capability class: IIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber on this soil is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

ThB3—Tippah silt loam, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating ridgetops
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Cropland, some areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, friable silty clay loam
14 to 28 inches, strong brown, mottled, friable silty clay loam
28 to 60 inches, light olive brown, mottled, firm silty clay

Inclusions

• A few small areas of the somewhat poorly drained Falkner and Wilcox soils in slight depressions and at the heads of drainageways

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, slow in the lower part
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting crops later in the spring improves plant germination and early growth.
Capability class: IIIe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine

General management considerations:
• The main limitation for the management of timber on this soil is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

ThC3—Tippah silt loam, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Undulating ridgetops and side slopes
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Cropland, some areas of pasture

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, friable silty clay loam
14 to 28 inches, strong brown, mottled, friable silty clay loam
28 to 60 inches, light olive brown, mottled, firm silty clay

Inclusions

• A few small areas of the somewhat poorly drained Falkner and Wilcox soils in slight depressions and at the heads of drainageways

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, slow in the lower part
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
• This soil should not be used continuously as cropland because of the slope and the high erosion potential.
• Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
• The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.
Suitable management practices:
• Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
• Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices increase soil moisture.
• Planting crops later in the season increases plant germination and early growth.
Capability class: IVe

Pasture and hayland

Suitability: Well suited
General management considerations:
• Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Grazing should be deferred until a period from late spring to early fall.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber on this soil is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the

slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

ThD—Tippah silt loam, 8 to 12 percent slopes

Setting

Landscape position: Narrow ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 50 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 7 inches, dark yellowish brown, very friable silt loam

Subsoil:
7 to 17 inches, yellowish red, friable silty clay loam
17 to 22 inches, strong brown, mottled, friable silty clay loam
22 to 28 inches, strong brown, mottled, friable silty clay loam
28 to 42 inches, mottled dark yellowish brown and grayish brown, firm silty clay
42 to 60 inches, mottled strong brown, gray, and yellowish brown, firm silty clay

Inclusions

- A few small, severely eroded areas at the heads of drainageways
- Intermingled areas of the well drained Luverne and Chickasaw soils on foot slopes

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, slow in the lower part
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- This soil should not be used continuously as cropland because of the slope and the high erosion potential.
- Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
- The seasonal wetness in winter and spring can restrict rooting depth and inhibit plant germination.

Suitable management practices:
- Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
- Planting cover crops, using a crop rotation system, returning crop residue to the soil, and using conservation tillage practices increase soil moisture.
- Planting crops later in the season increases plant germination and early growth.

Capability class: IVe

Pasture and hayland

Suitability: Suited
General management considerations:
- Because of the seasonal wetness, only those hay and pasture plants that can tolerate short periods of wetness, such as fescue and white clover, should be selected.
- A perched water table limits grazing for several days at a time during the winter and early spring.

Suitable management practices:
- Grazing should be deferred until a period from late spring to early fall.
- Stocking rates should be adjusted to prevent overgrazing and to help prevent erosion.
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
- The main limitation for the management of timber on this soil is plant competition.

Suitable management practices:
- Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to most residential and commercial uses because of the slope, the seasonal wetness, the slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

ThD3—Tippah silt loam, 8 to 12 percent slopes, severely eroded

Setting

Landscape position: Narrow ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 300 acres
Major uses: Woodland, pasture

Typical Profile

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, friable silty clay loam
14 to 28 inches, brown, mottled, friable silty clay loam
28 to 60 inches, light olive brown, mottled, firm silty clay

Inclusions

• Intermingled areas of the well drained Luverne and Chickasaw soils on foot slopes

Important Soil Properties and Features

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, slow in the lower part
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: Perched at a depth of 2 to 2.5 feet in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• This soil is unsuited for row crops because of the slope, the high runoff rate, and the high potential for erosion.
Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
• A perched water table limits grazing for several days at a time during the winter and early spring.
Suitable management practices:
• Stocking rates should be adjusted, especially in steeper areas, to prevent overgrazing and to help prevent erosion.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitation for the management of timber on this soil is plant competition.
Suitable management practices:
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to most residential and commercial uses because of the slope, the seasonal wetness, the slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

TuD3—Tippah-Luverne complex, 5 to 12 percent slopes, severely eroded

Setting

Landscape position: Narrow ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 500 acres
Composition of the map unit: 50 percent Luverne soil, 40 percent Smithdale soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Tippah

Surface layer:
0 to 5 inches, dark yellowish brown, mottled, very friable silt loam

Subsoil:
5 to 14 inches, strong brown, friable silty clay loam
14 to 28 inches, brown, mottled, friable silty clay loam
28 to 60 inches, light olive brown, mottled, firm silty clay

Luverne

Surface layer:
0 to 4 inches, reddish brown, very friable clay loam

Subsoil:
4 to 18 inches, yellowish red, firm clay
18 to 30 inches, yellowish red, friable sandy clay loam

Substratum:
30 to 60 inches, stratified red, friable sandy loam and light gray, firm clay

Inclusions

• Intermingled areas of the well drained Smithdale and Chickasaw soils on foot slopes

Important Soil Properties and Features

Drainage class: Tippah—moderately well drained; Luverne—well drained
Permeability: Tippah—moderate in the upper part, slow in the lower part; Luverne—moderately slow
Available water capacity: Tippah—high; Luverne—moderate
Soil reaction: Strongly acid or very strongly acid
Flood hazard: None
High water table: Tippah—perched at a depth of 2 to 2.5 feet in winter and spring; Luverne—none

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• This unit is unsuited for row crops because of the slope, the high runoff rate, and the high potential for erosion.
Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
Suitable management practices:
• Stocking rates should be adjusted, especially in steeper areas, to prevent overgrazing and to help prevent erosion.
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber in this map unit are the equipment limitation, seedling mortality, and plant competition.
Suitable management practices:
• Wheeled and tracked equipment can be used in the moderately steep areas, but logging and harvesting operations should be conducted only during dry seasons from midsummer through early fall.
• Planting hardier seedlings and planting on north- or east-facing slopes increase the seedling survival rate.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
• This unit is poorly suited to most residential and commercial uses because of the slope, the seasonal wetness, the slow permeability of the subsoil, the low strength, and the high shrink-swell potential.

Ua—Udarents, loamy

This map unit consists of areas that have been filled, graded, and disturbed in the process of urbanization; borrow areas where the soil material has been removed and used in the construction of roadbeds or as fill material for construction sites; and sanitary landfills.

In areas that have been filled, graded, and disturbed in the process of urbanization, the upper 2 to 5 feet of soil material has been added or has been reworked. The soil material that remains generally consists of loamy or sandy marine sediments that have fragments of ironstone or claystone.

Borrow pits commonly are excavated to a depth of 10 to 50 feet. The soil material on the steep vertical sidewalls is similar to that described in the lower part of the subsoil of adjacent soils. The bottom of pits in these borrow areas consists of coarse sand or loamy sand.

In landfill areas, the original soil material has been removed and filled with solid waste in alternating layers. Landfills that no longer receive waste material have been revegetated with trees or permanent grasses.

The exposed, loamy and sandy material in this unit supports plant growth. Most areas in this unit have an emerging vegetative cover of native grasses, shrubs, and trees. Some areas have been reclaimed to stands of eastern redcedar and loblolly pine. The acidity, the rooting depth in some areas, and the hazard of erosion are some limitations of the soil material. Because areas of this map unit are so diverse, onsite investigation is needed before use and management can be effectively planned.

This map unit is not assigned a capability class.

UC—Urbo and Chenneby soils, frequently flooded

Setting

Landscape position: Flood plains along the Hatchie River and major tributaries
Shape of areas: Long and narrow
Size of areas: 10 to 1,000 acres
Composition of the map unit: 60 percent Urbo soil, 30 percent Chenneby soil, and 10 percent included soils
Major use: Woodland

Typical Profile

Urbo

Surface layer:
0 to 5 inches, brown, very friable silt loam

Subsoil:
5 to 12 inches, grayish brown, mottled, firm silty clay
12 to 22 inches, light brownish gray, mottled, firm silty clay
22 to 60 inches, light brownish gray, mottled, firm clay
40 to 60 inches, light brownish gray, mottled, friable clay loam

Chenneby

Surface layer:
0 to 6 inches, brown, very friable silt loam

Subsurface layer:
6 to 12 inches, dark grayish brown, mottled, very friable silt loam

Subsoil:
12 to 21 inches, brown, mottled, friable silt loam
21 to 29 inches, grayish brown, mottled, friable silt loam
29 to 40 inches, grayish brown, mottled, friable silt loam
40 to 60 inches, light brownish gray, mottled, friable clay loam

Inclusions

• A few small areas of the poorly drained Amagon and Rosebloom soils in depressions

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Urbo—very slow; Chenneby—moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Flooding: Frequent for long periods in winter and spring
High water table: Seasonal, at a depth of 1.0 foot to 1.5 feet, in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• The seasonal wetness, the slow permeability, and the frequent flooding limit the production and harvest of crops.
Capability class: IVw

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• This soil is poorly suited to pasture and hay because of the frequent flooding and the seasonal wetness.
Suitable management practices:
• In some areas of the unit where the flooding is less severe, water-tolerant plants, such as tall fescue and white clover, can be grown for pasture.

Woodland

Suitability: Suited to water-tolerant trees; provides excellent habitat for wetland wildlife
Trees suitable for planting: American sycamore, sweetgum, willow oak, cherrybark oak, swamp chesnut oak, green ash, and eastern cottonwood
General management considerations:
• The main limitations for the management of timber in this map unit are the equipment limitation, seedling mortality, and plant competition.
Suitable management practices:
• Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
• Planting water-tolerant species and planting on beds increase the seedling survival rate.
• Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• This map unit is unsuited to all residential and commercial uses because of the frequent flooding, the slow permeability, and the seasonal wetness.

Ur—Urbo silty clay loam, occasionally flooded

Setting

Landscape position: Flood plains along the Hatchie River and major tributaries

Slope range: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 800 acres
Major uses: Cropland, pasture

Typical Profile

Surface layer:
0 to 5 inches, brown, very friable silt loam

Subsoil:
5 to 12 inches, grayish brown, mottled, firm silty clay
12 to 22 inches, light brownish gray, mottled, firm silty clay
22 to 40 inches, light brownish gray, mottled, firm clay
40 to 60 inches, light brownish gray, mottled, friable clay loam

Inclusions

- A few small, intermingled areas of the somewhat poorly drained Chenneby soils
- Areas of the poorly drained Rosebloom and Amagon soils in depressions

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid except in areas that have been limed
Flooding: Occasional for very brief to brief periods in winter and spring
High water table: Seasonal, at a depth of 1.0 foot to 2.0 feet, in winter and early spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Seasonal wetness and flooding limit the production and harvest of some crops.

Suitable management practices:
- Because of the wetness and the hazard of flooding early in spring, planting short-season annuals, such as soybeans or grain sorghum, is recommended.

Capability class: IIw

Pasture and hayland

Suitability: Suited
General management considerations:
- Only those hay and pasture plants that can tolerate periodic inundation and seasonal wetness should be selected.
- The seasonal high water table limits grazing for several days at a time during the winter and early spring.

Suitable management practices:
- Plants, such as fescue and white clover, that can tolerate short periods of wetness should be selected.
- Grazing should be deferred until a period from late spring to early fall.

Woodland

Suitability: Suited to bottom land hardwoods
Trees suitable for planting: American sycamore, sweetgum, willow oak, cherrybark oak, swamp chesnut oak, green ash, and eastern cottonwood
General management considerations:
- The main limitations for the management of timber on this soil are the equipment limitation, seedling mortality, and plant competition.

Suitable management practices:
- Harvesting and planting operations should be limited to the late summer and early fall, when the hazard of flooding and the seasonal wetness are reduced.
- Planting water-tolerant species and planting on beds increase the seedling survival rate.
- Site preparation, such as chopping, burning, and applying herbicide, reduces the immediate plant competition.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to residential and commercial uses because of the flooding, the very slow permeability, and the seasonal wetness.

Suitable management practices:
- Dwellings, small commercial buildings, and roads and streets should be located in higher areas that are not subject to flooding and excessive wetness.

WcB3—Wilcox silty clay, 2 to 5 percent slopes, severely eroded

Setting

Landscape position: Undulating ridgetops in the eastern part of the county
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major uses: Pasture, hayland

Typical Profile

Surface layer:
0 to 5 inches, brown, friable silty clay

Subsoil:
5 to 16 inches, yellowish brown, light brownish gray, and strong brown, firm silty clay

16 to 29 inches, light brownish gray, mottled, firm clay
29 to 41 inches, light brownish gray, mottled, firm clay
41 to 47 inches, grayish brown, mottled, very firm clay

Substratum:
47 to 55 inches, mottled grayish brown, dark gray, and strong brown, very firm clay
55 to 60 inches, grayish brown and dark gray claystone

Inclusions

- A few small, intermingled areas of the somewhat poorly drained Falkner soils
- Small areas of the moderately well drained Tippah soils on slightly convex knolls

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High or moderate
Soil reaction: Strongly acid to extremely strongly acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.0 foot to 1.5 feet in winter and spring

Use and Management

Cropland

Suitability: Suited
General management considerations:
- Accelerated erosion by water can remove valuable topsoil and adversely affect rooting depth.
- The texture of the subsoil restricts the rooting depth and hinders cultivation unless the soil is moist.
- The soil can be droughty during dry years, and yields are reduced.

Suitable management practices:
- Using practices such as no-till and contour stripcropping reduces the hazard of water erosion and runoff.
- Tilth can be improved or maintained and soil moisture can be increased by using a cropping system that includes grasses, legumes, or grass-legume mixtures; rotating crops; using minimum tillage; and growing cover crops.

Capability class: IIIe

Pasture and hayland

Suitability: Suited
General management considerations:
- Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
- A perched water table limits grazing for several days at a time during the winter and early spring.
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
- During dry years, the low amount of available water can reduce yields.

Suitable management practices:
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
- Grazing should be deferred until a period from late spring to early fall.
- Avoiding overgrazing, especially in the sloping areas, reduces the hazard of erosion.

Woodland

Suitability: Well suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
- The main limitations for the management of timber on this soil are the equipment limitation, seedling mortality, and plant competition.

Suitable management practices:
- Wheeled and tracked equipment can be used, but timber harvesting operations should be conducted only during dry seasons from midsummer through early fall.
- Planting older, hardier seedlings and maintaining a cover of mulch increase the seedling survival rate and increase the moisture content.
- Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the very slow permeability of the subsoil, the depth to rock, the low strength, and the high shrink-swell potential.

WcC3—Wilcox silty clay, 5 to 8 percent slopes, severely eroded

Setting

Landscape position: Undulating upland ridgetops
Shape of areas: Irregular
Size of areas: 5 to 200 acres
Major uses: Pasture, hayland, woodland

Typical Profile

Surface layer:
0 to 5 inches, brown, friable silty clay

Subsoil:
5 to 16 inches, mottled yellowish brown, light brownish gray, and strong brown, firm silty clay
16 to 29 inches, light brownish gray, mottled, firm clay
29 to 41 inches, light brownish gray, mottled, firm clay
41 to 47 inches, grayish brown, mottled, very firm clay

Substratum:
47 to 55 inches, mottled grayish brown, dark gray, and strong brown, very firm clay
55 to 60 inches, grayish brown and dark gray claystone

Inclusions

- Small areas of the well drained Chickasaw and moderately well drained Tippah soils on small convex knolls on narrow ridges
- Small, intermingled areas of the somewhat poorly drained Falkner soils

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: Moderate
Soil reaction: Strongly acid to extremely acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1 to 1.5 feet in winter and spring

Use and Management

Cropland

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited for use as cropland because of the hazard of erosion, the high shrink-swell potential in the subsoil, the limited available water during summer, and the difficulties involved in tilling the soil.

Suitable management practices:
- Areas used as cropland should only be cultivated on the contour, using a rotation system in which the land remains in a vegetative cover for several seasons following cultivation.
- Using conservation practices, such as no-till and returning residue to the surface, helps to minimize erosion, increase soil moisture, and improve tilth.

Capability class: VIe

Pasture and hayland

Suitability: Suited
General management considerations:
- Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
- A perched water table limits grazing for several days at a time during the winter and early spring.
- If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
- During dry years, the limited amount of available water can reduce yields.

Suitable management practices:
- The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
- Grazing should be deferred until a period from late spring to early fall.
- Avoiding overgrazing, especially in the sloping areas, reduces the hazard of erosion.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
- The main limitations for the management of timber on this soil are the equipment limitation, seedling mortality, and plant competition.

Suitable management practices:
- Wheeled and tracked equipment can be used, but timber harvesting operations should be conducted only during dry seasons from midsummer through early fall.
- Planting older, hardier seedlings and maintaining a cover of mulch increase the seedling survival rate and increase the moisture content.
- Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Poorly suited
General management considerations:
- This soil is poorly suited to most residential and commercial uses because of the seasonal wetness, the very slow permeability of the subsoil, the depth to rock, the low strength, and the high shrink-swell potential.

WcD3—Wilcox silty clay, 8 to 15 percent slopes, severely eroded

Setting

Landscape position: Rolling ridgetops and hillsides
Shape of areas: Irregular
Size of areas: 5 to 150 acres
Major use: Woodland

Typical Profile

Surface layer:
0 to 5 inches, brown, friable silty clay

Subsoil:
5 to 16 inches, mottled yellowish brown, light brownish gray, and strong brown, firm silty clay
16 to 29 inches, light brownish gray, mottled, firm clay
29 to 41 inches, light brownish gray, mottled, firm clay
41 to 47 inches, grayish brown, mottled, very firm clay

Substratum:
47 to 55 inches, mottled grayish brown, dark gray, and strong brown, very firm clay
55 to 60 inches, grayish brown and dark gray claystone

Inclusions

• Small areas of the well drained Chickasaw and moderately well drained Tippah soils on small convex knolls and shoulder slopes

Important Soil Properties and Features

Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: Moderate
Soil reaction: Strongly acid to extremely acid except in areas that have been limed
Flood hazard: None
High water table: Perched at a depth of 1.0 foot to 1.5 feet in winter and spring

Use and Management

Cropland

Suitability: Unsuited
General management considerations:
• This soil is unsuited for use as cropland because of the high rate of runoff, the hazard of erosion, the high shrink-swell potential in the subsoil, limited available water during summer, and the difficulties involved in tilling the soil.
Capability class: VIIe

Pasture and hayland

Suitability: Poorly suited
General management considerations:
• Pasture renovation is necessary when the better forage plants have decreased to a level less than that needed for optimum production.
• A perched water table limits grazing for several days at a time during the winter and early spring.
• If the plants are overgrazed or if plant stands are poor, the slope increases the hazard of erosion.
• During dry years, the low amount of available water can reduce yields.
Suitable management practices:
• The quality and quantity of forage can be maintained by rotating grazing, controlling weeds, and applying fertilizer annually.
• Grazing should be deferred until a period from late spring to early fall.
• Avoiding overgrazing, especially in the sloping areas, reduces the hazard of erosion.

Woodland

Suitability: Suited
Trees suitable for planting: Yellow-poplar, cherrybark oak, southern red oak, shortleaf pine, and loblolly pine
General management considerations:
• The main limitations for the management of timber on this soil are the equipment limitation, seedling mortality, and plant competition.
Suitable management practices:
• Wheeled and tracked equipment can be used, but timber harvesting operations should be conducted only during dry seasons from midsummer through early fall.
• Planting older, hardier seedlings and maintaining a cover of mulch increase the seedling survival rate and increase the moisture content.
• Competing vegetation can be reduced by using controlled burning, applying herbicide, and girdling or cutting unwanted trees.

Residential and commercial uses

Suitability: Unsuited
General management considerations:
• The soil is unsuited to most residential and commercial uses because of the slope, seasonal wetness, very slow permeability in the subsoil, depth to rock, low strength, and high shrink-swell potential.

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

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

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, 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.

According to the 1992 Census of Agriculture, a total of 144,558 acres in Hardeman County was used for crops and pasture. Of this total, 93,585 acres was used as cropland and 50,973 acres was used as pasture. The acreage used for soybeans was 12,700 acres; for corn, 8,000 acres; and for cotton, 20,400 acres. Wheat, grain sorghum, and truck and hay crops accounted for the remaining acreage. In recent years, the total acreage used for crops has been increasing, and acreage used as pasture has been decreasing.

Pasture and hay crops make up a significant acreage of the cleared land and farm land in the survey area. Most of the pasture and hay crops in the county consist of tall fescue and white clover for spring and fall production and improved bermudagrass for summer production. Alfalfa and lespedeza are becoming increasingly important as hay crops.

Soil erosion is a serious management concern in most areas of the county. The loss of soil through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. The loss of the surface layer is especially damaging on soils that have a layer in the subsoil that limits the depth of the roots, such as in Loring and Providence soils. Secondly, controlling erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal and recreational uses and for fish and wildlife.

Erosion-control practices provide a surface cover, reduce the runoff rate, and increase the infiltration of water (fig. 8). A cropping system that retains a vegetative cover on the soil surface for extended periods reduces erosion and maintains the productivity of the soils.

On livestock farms, which require pasture and hay, including legumes and grass-forage crops in the cropping system reduces erosion in sloping areas, provides nitrogen, and improves tilth.

Contour farming, terraces, diversions, grassed waterways, and conservation tillage practices reduce the

Figure 8.—An area of Loring silt loam, 2 to 5 percent slopes, eroded. If managed to control erosion, this soil is well suited to most crops.

runoff rate and control erosion. Conservation tillage, which includes practices such as no-till, strip-tillage, stubble mulching, and chiseling, is increasing in Hardeman County. It effectively controls erosion, maintains the content of organic matter, and conserves soil moisture.

Soil drainage is a major management concern on much of the acreage used for crops and pasture. Drainage is needed on flood plains, in upland depressions, and on broad, flat stream terraces in areas that receive large quantities of water from runoff or stream overflow. The design of a surface and subsurface drainage system depends upon the type of soils in the area. A combined surface and subsurface system is needed in poorly drained areas. Finding adequate outlets for the drainage system is difficult in some areas.

Most soils on uplands are strongly or very strongly acid. In unlimed areas, applications of ground limestone are necessary to raise the pH level for the optimum growth of most field crops. On all soils, the application of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

In general, most of the soils in the survey area that are well suited to crops are also well suited or moderately suited to residential and commercial development, except in flood-prone areas. The data about specific soils in this survey can be used in planning future land uses. The potential of a soil for urban uses should be considered in relation to its potential for use as farm land.

Soil Erosion

The soil resources of Hardeman County have been significantly affected by soil erosion over the years since the first settlers cleared the trees and began to farm the

land. It is impossible to say with certainty how thick the surface layers were at that time; however, by comparing the soil profiles of present day farm land with the soil profiles of nearby wooded areas that appear never to have been cultivated, some evidence of the extent of soil erosion on the soils in Hardeman County can be determined. During the preparation of this survey, soil scientists observed many profiles of eroded and uneroded soils. They studied characteristics of the soils, such as color, texture, and structure of surface layer as well as the depth to a fragipan or to a clayey subsoil. These observations were recorded and were used to determine much of the information in this survey. By comparing descriptions of eroded and uneroded soils, soil scientists estimated that the cultivated, sloping soils on uplands in Hardeman County generally have lost from 6 to as much as 18 inches of soil material due to erosion. Most uneroded areas have a surface layer ranging from 6 to 9 inches thick. If this is the natural thickness, most of the cropland on uplands has lost all, or nearly all, of the original surface layer, and farmers are now farming in what was once subsoil material.

Data from table 5 indicates that 200,226 acres, or 47 percent of the soils in the county, are eroded or severely eroded. These figures are somewhat conservative, because eroded phases were not separated during the mapping in areas where the slope was more than 12 percent. Estimates indicate that, in addition to the number of acres listed above, about 15,000 acres are severely eroded. Thus, a total of about 50 percent of the county is affected by erosion. Of the 200,226 acres of eroded or severely eroded soils, 11,560 acres are so eroded that not only has the surface layer eroded away but enough of the subsoil is lost that the soil series present at the time cultivation began can no longer be recognized. These areas are severely gullied. They are unsuitable for the production of crops unless major, costly reclamation projects are undertaken.

Soil erosion affects the tilth and productivity of the land in several ways. In the most extreme cases, land that was at one time productive has been rendered nonarable. Much of the land that is now occupied by the Chickasaw State Park and Forest is an example of such a case. Many areas had been used for growing cotton, and gully erosion became so severe that it was impossible to farm the land. The federal government purchased the land and reforested it with pine trees. The area was later returned to the State of Tennessee to be used for recreational purposes, the production of woodland, and habitat for wildlife.

Other effects of soil erosion are less dramatic but very significant. Under natural conditions, most of the plant nutrients and nearly all of the the organic matter are concentrated in the surface layer of soils. The organic matter has positive effects on soil structure, water infiltration, available water capacity, and general tilth. As the surface layer is lost to erosion, the natural fertility and content of organic matter decrease, and management costs in the form of lime, fertilizer, and fuel for cultivation increase in order to maintain yields.

In addition to the problems resulting from the loss of nutrients and organic matter from eroded soils, some soils have other properties which adversely affect productivity and tilth if erosion occurs. For example, Chickasaw, Luverne, and Wilcox soils have a clayey subsoil. In areas where the clayey subsoil material has been exposed at the surface, tilth is poor because these soils are sticky when wet and, if cultivated in that condition, the surface layer tends to crust and form clods as it dries. Some soils, such as Providence soils, have a fragipan in the subsoil that restricts the rooting depth. In areas where the soil material above the fragipan has been lost, the rooting depth and the available water capacity of the soil are limited, and yields are lowered. If areas that have exposed, clayey subsoil material or an exposed fragipan are cultivated, the cultivation should be planned for periods when the moisture content is appropriate for proper tilth. Cultivating these soils when the moisture content is poor results in increased expenditures of energy to operate machinery and results in poor germination.

Luverne soils typically have ironstone fragments distributed throughout the subsoil. If these soils are allowed to erode, the fine particles are washed away and the ironstone remains behind, concentrated on the surface. The remaining ironstone interferes with some tillage operations and seed germination.

Because the rate of soil erosion varies within a single field, the effects of erosion occur in varying degrees in the same area. The effectiveness of fertilizers and herbicides will, therefore, vary from point to point within the field and will thereby make it difficult to select a management strategy to maximize production.

In addition to the negative effects of soil erosion on the tilth and productivity of farm land, erosion also causes the pollution of streams, rivers, and ponds by sediment, nutrients, and pesticides. Soil erosion contributes significantly to the clogging of channels, which causes an increased potential for flooding.

Controlling erosion minimizes pollution, reduces flooding, and improves the quality of water for fish and wildlife. Some of the eroded soil material never enters the stream channels but instead is deposited in the lower areas of the field. These deposits can cover recently planted crops, resulting in lower yields.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are

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

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also 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 the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops *(4)*. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and 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 I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

Class VIII 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, IIe. 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 I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w* or *s* because the soils in class V 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 each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Prime Farmland

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

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food,

feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pasture land, forest land, 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. The 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 81,035 acres, or nearly 19 percent of the survey area, meets the requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the western part, mainly in general soil map units 1 and 3, and on terraces and flood plains in general soil map units 6 and 8. Most of this acreage is used for row crops, such as cotton, corn, soybeans, and grain sorghum. A few areas are used for pasture and hay. The main forage crops grown are tall fescue, white clover, and improved bermudagrass. Alfalfa hay is another crop that has an increasing acreage in Hardeman County.

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

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Woodland Management and Productivity

Joseph H. Paugh, forester, Natural Resources Conservation Service, helped to prepare this section.

Prior to settlement, nearly all of the land in the survey area was forested. As the county was settled, much of the land suitable for cultivation was cleared. A total of 251,880 acres, or about 60 percent of the acreage in the county, remains forested. Generally, the woodland areas are on soils which are either too steep, wet, remote, or severely eroded to be practical for the production of crops or grasses. These areas can produce high quality trees if the woodland is managed properly. The other values of woodland include wildlife habitat, recreation, aesthetics, and conservation of soil and water.

The major forest type groups that occur in the county are upland oaks, southern yellow pines, and bottom land hardwoods. The upland oaks forest type is the most extensive. It is on uplands throughout the county. Some species of commercial importance commonly found in this forest type are white oak, red oak, cherrybark oak, shagbark hickory, mockernut hickory, and yellow-poplar.

Most of the trees in the southern yellow pines forest type are not native to the county but are now common in areas where the oak-hickory forest was cut. Some native shortleaf pine can be found, mostly in the eastern and southern parts of the county. Understocking and suppression of desirable seedlings are major management concerns for the production of timber. Most of the pine is found in severely eroded areas and on steep hillsides, where row crops and grassland are not profitable. The dominant pine species are loblolly pine and shortleaf pine. Less common species include Virginia pine, eastern white pine, and slash pine. The principal value of most of the pine is as pulpwood, which is used in the packaging and paper industries. Several large tracts are owned by commercial forest industries and are managed intensively for lumber. Many of the smaller tracts are in woodlots and were planted primarily for erosion control. Many of these farm woodlots are unmanaged and have become overstocked. Damage from ice is a management concern in areas where loblolly pine is grown.

Some soil-related management concerns affect both the upland oak and southern yellow pine forest types. On the more productive soils, such as Lexington, Loring, Tippah, and Providence soils, competing vegetation can be a concern. Using suitable herbicides or removing the vegetation mechanically reduces the competing vegetation. In many areas, Luverne soils have small ironstone fragments on the surface and in the subsoil,

which can hinder the hand planting of seedlings. This is particularly evident in eroded areas, where soil erosion has removed the surface layer, leaving the fragments concentrated on the surface. Some soils, such as Chickasaw, Falkner, Tippah, Luverne, and Wilcox soils, have a clayey subsoil that shrinks when dry and swells when moist. Forestry operations should be limited to the driest seasons of the year in areas of these soils. The root system of seedlings planted in these soils may be adversely affected by the soil movement. As the soil shrinks during dry periods in summer, the roots become exposed and the mortality rate of planted seedlings increases. In many areas, Chickasaw, Lucy, Luverne, and Smithdale soils are on very steep slopes. In these areas, erosion is management concern. Logging roads, landings, and skid trails must be carefully designed and located, and the areas should be revegetated once operations have ceased.

The bottom land forest type can be found throughout the county. Some of the commercially important species are water oak, cherrybark oak, swamp chestnut oak, sweetgum, willow oak, and American sycamore. Baldcypress and water tupelo are found in areas of Rosebloom and Bibb soils, mostly along the Hatchie River and in the bottoms of Spring Creek, Clover Creek, and Muddy Creek. Yellow-poplar is common in bottom areas that are no longer used for crops. Some soils, such as Enville, Rosebloom, Bibb, and Chenneby soils, provide abundant moisture and excellent growing conditions for vines and weeds, which compete severely with hardwood seedlings and suppress their growth. In many areas of Rosebloom and Bibb soils, long periods of frequent flooding have killed valuable timber. Many bottom land channels are clogged by sand and silt from erosion in the uplands and by beaver dams and other debris. The clogged channels and the subsequent flooding have killed or damaged several bottom land forests in the county. Overcoming these problems requires community efforts.

Unrestricted grazing by cattle is a management concern that affects both the upland oak and bottom land forest types. Grazing cattle destroy much of the natural regeneration of a site, compact the soil, and damage tree roots. Fencing a small area of pasture adjacent to a forest provides the livestock with needed shade, reduces the damage to trees, and minimizes the amount of sediment and waste entering streams.

Table 7 can be used by woodland owners or forest managers in planning 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 are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular preventative 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.

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.

Trees to plant are those that are suitable for commercial wood production.

Recreation

One major area, Chickasaw State Park and State Forest, was developed for public recreation in Hardeman County. It is used for camping, picnicking, hunting, fishing, and hiking along with seasonal horseback riding and swimming. Large areas of the forest, which are managed by several commercial timber companies, are available to the public for hunting. Whiteville Lake, the largest body of water in the county, is widely used for fishing and boating. Hardeman County also has several private resorts and lakes.

Hardeman County has a moderate potential for further recreational development.

The soils of the survey area are rated in table 8 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 are also important. Soils 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 the table, 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 measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

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

Prepared by Michael E. Zeman, State biologist, Natural Resources Conservation Service.

Wildlife is an important natural resource in Hardeman County. It provides a source of revenue from hunting and fishing and provides such recreational activities as camping, boating, hiking, photography, and bird watching. Popular game species include whitetail deer, eastern wild turkey, bobwhite quail, mourning dove, cottontail rabbit, and gray and fox squirrels.

The whitetail deer is the most popular game animal in the county. Deer populations are high, and substantial herd growth has occurred over the past few years. Harvest records indicate that approximately a twenty-fold increase in the deer population occurred from 1970 to 1990. Hardeman County is currently one of the top ten deer-producing counties in the state.

Although they were almost eradicated before the 1950's, flocks of eastern wild turkey have been restored by Tennessee Wildlife Resources Agency in the county. Although moderate populations have been reported, populations are growing as a result of the restoration program of the Tennessee Wildlife Resources Agency and the management of habitat.

The populations of bobwhite quail are low to moderate in the county. The largest number of quail are in the southwestern areas and are associated with more interspersed habitats. In these areas, a good habitat diversity is found in areas where brushy fence rows, clearcut areas, and idle grassland fields are adjacent to cropland fields and woodland edges.

Mourning doves migrate into the county each fall and winter. A healthy population of residual birds inhabits the county and remains throughout the year. The largest population of mourning doves is adjacent to harvested cropland and in idle fields. Hardeman County offers an ideal habitat for these migrating birds. It has abundant roosting areas in the large pine plantations that are close to water and cropland.

The cottontail rabbit population is moderate to high as a result of the abundant desirable habitat throughout the county. The largest population is generally associated with low, brushy or weedy cover near agricultural fields. Another species of rabbit, the swamp rabbit, is also in the county. The swamp rabbit is much larger than the cottontail rabbit, and it prefers lowland swamps and wooded flood plains. It is found on the large flood plain of the Hatchie River. The swamp rabbit is listed as a "species of concern" by the state of Tennessee due to declining habitat caused by drainage activities and land clearing.

Three species of squirrels are in Hardeman County. They are the southern flying squirrel, the fox squirrel, and the gray squirrel. The gray squirrel and the southern flying squirrel, which is primarily nocturnal, have a good to excellent population throughout the hardwood and mixed pine-hardwood forests. The fox squirrel is more common in upland pine plantations, in smaller woodlots, and in woody fence rows near agricultural fields.

Hardeman County has a low to moderate population of migratory waterfowl. Some common species of waterfowl migrating across the county include the mallard, blue-wing teal, widgeon, bufflehead, Canadian geese, and snow geese. The most prominent species of duck that resides and nests in the county is the wood duck, which primarily uses upland ponds and lakes and the abundant wetlands of the Hatchie River. Also, farm ponds and larger flood-prevention reservoirs in the county provide desirable roosting and resting habitat for all waterfowl.

Several species of furbearers are in the county. Wetland furbearers, such as mink, muskrat, and beaver, have a moderate to high population along streams, small lakes, farm ponds, and the Hatchie River. Upland furbearers are abundant throughout the county. The major species include bobcat, opossum, raccoon, gray fox, striped skunk, and coyote.

Different species of songbirds are associated with different plant communities. Woodland birds, such as the Carolina chickadee, tufted titmouse, pileated woodpecker, and wood thrush thrive in the mixed pine and hardwood forests. Open land birds, including robins, meadowlarks, and various sparrows, are found near homesites and in nonforested areas. The birds of prey that commonly inhabit the county include the red-tailed hawk, sparrow hawk, barred owl, and screech owl. The species in Hardeman County that have been listed by the State or Federal government as "threatened" or "endangered" include the gray bat, the red-cockaded woodpecker, and the river otter. Species that sometimes migrate through the county include the bald eagle, peregrine falcon, osprey, sharp-shinned hawk, Cooper's hawk, and grasshopper sparrow.

The county has many ponds and small lakes available for fishing and recreation. Many of the ponds are stocked with largemouth bass, bluegill sunfish, and channel catfish. The water in these ponds is typically acidic and stained. The reproduction and quantity of fish can be restricted if the water quality is not managed.

Hardeman County has many wetlands, excluding such artificial wetlands as upland farm ponds. The wetlands are

Figure 9.—Flooded timber in an area of Rosebloom and Bibb soils, frequently flooded. These soils provide excellent habitat for wetland wildlife.

primarily wooded flood plains along the major rivers and streams. Areas of bottom land provide some of the most productive wildlife habitat in the county (fig. 9). These areas improve the water quality of streams by removing nutrients and trapping sediment from upland runoff. Also, they lower the water temperatures by shading streams and provide leaf litter that serves as food for aquatic insects. The wooded bottoms also help to abate flooding.

Conservation practices can improve or maintain quality wildlife habitat. Rotating crops annually and leaving crop residue on the surface can provide food and winter cover for many species of wildlife. Fencing livestock and deferring grazing on some pastures protect food plots and nesting cover. These practices even protect fish habitat by reducing animal waste and preventing sediment from being washed into streams. Field borders and filter strips along streams protect the water quality and provide food, cover, and travel routes for many species. Thinning the woodland should be performed selectively, in a manner that protects dens and mast-producing trees. Other practices that improve wildlife habitat include incorporating management systems, such as wildlife upland habitat

management, wildlife wetland habitat management, fish pond management, pasture and hayland management, livestock exclusion, and woodland improvement, into land use planning.

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 9, 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 are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, orchardgrass, 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 are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, switchgrass, and indiangrass.

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 pyracantha, autumn-olive, and crabapple.

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

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

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

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

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

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

Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and coyote.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

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 10 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, and 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, a cemented pan, 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, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, 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 or to a cemented pan, 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, frost action 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 or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials 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 11 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 or to a cemented pan, 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 or to a cemented pan, flooding, large stones, and content of organic matter.

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. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

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 or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium 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, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. 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 12 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 the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the 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, bedrock, and toxic material.

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, stones, or soluble salts, 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, stones, or soluble salts, 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 13 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, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

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

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, to a cemented pan, 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; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. 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 or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, 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 or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or 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 or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, 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.

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 14 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. Highly organic soils are classified in group A-8 on the basis of visual inspection.

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

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major 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 greatly affect the fertility and physical condition of the soil. They determine 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-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major 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. A bulk density of more than 1.6 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 estimates 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 major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. 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.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major 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.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, more than 6 percent; and *very high*, greater than 9 percent.

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) 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 (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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.

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

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 16 gives estimates of various soil and 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.

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

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding 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 flooding 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 flooding is more than 50 percent in any year). Duration is expressed as *extremely brief* if 0.1 to 4.0 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

A *cemented pan* is a cemented or indurated subsurface layer within a depth of 5 feet. Such a pan causes difficulty in excavation. Pans are classified as thin or thick. A thin pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines,

backhoes, or small rippers. A thick pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

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

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

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

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(5)*. 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 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

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

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

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

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

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, thermic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(7)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(5)* 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."

Adaton Series

The Adaton series consists of very deep, poorly drained soils on broad upland flats and in depressions in the western part of the county and on low stream terraces throughout the county. The soils formed in a mixture of loess and silty alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Adaton silt loam, 2.1 miles east of Hebron, 0.8 mile west of Serles, 1.5 miles northeast of the intersection of Pea Vine Road and Serles Road, 200 feet south of Serles Road, in a wooded area (atlas sheet 22):

A—0 to 8 inches; grayish brown (10YR 5/2) silt loam; common fine prominent yellowish red (5YR 5/8) mottles; moderate medium granular structure; very friable; common very fine and few fine roots; few fine manganese concretions; strongly acid; abrupt wavy boundary.

Eg—8 to 13 inches; light gray (10YR 7/2) silt loam; few fine prominent yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; very friable; common very fine roots; few fine manganese concretions; very strongly acid; clear wavy boundary.

Btg1—13 to 17 inches; light brownish gray (10YR 6/2) silt loam; few fine prominent yellowish red (5YR 4/6) mottles; weak fine subangular blocky structure; friable; common very fine roots; few faint gray (10YR 6/1) clay films on faces of peds; few fine manganese concretions; very strongly acid; clear wavy boundary.

Btg2—17 to 32 inches; light brownish gray (10YR 6/2) silty clay loam; few fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common very fine roots; common distinct dark grayish brown (10YR 4/2) and faint grayish brown (10YR 5/2) clay films on faces of peds; few distinct light gray (10YR 7/1) silt coatings on faces of some peds; common fine manganese concretions; very strongly acid; gradual smooth boundary.

Btg3—32 to 47 inches; gray (10YR 5/1) silty clay loam; common medium prominent yellowish red (5YR 4/6) mottles; moderate coarse subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct light gray (10YR 7/1) silt coatings on faces of some peds; common fine manganese concretions; very strongly acid; gradual wavy boundary.

Btg4—47 to 60 inches; gray (10YR 5/1) silty clay loam; common medium prominent strong brown (7.5YR 5/8) and many fine prominent yellowish red (5YR 4/6) mottles; moderate coarse subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct light gray (10YR 7/1) silt coatings on faces of some peds; common fine manganese concretions; very strongly acid.

Reaction is very strongly acid or strongly acid, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Some pedons have few to many mottles in shades of brown, red, or gray. Texture is silt loam or loam.

The Eg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2. It has few to many mottles in shades of red or brown. Texture is silt loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or less. Some pedons have few to many mottles in shades of red or brown. Texture is silty clay loam or silt loam in upper part of the horizon and silty clay loam or silty clay in the lower part.

Amagon Series

The Amagon series consists of very deep, poorly drained soils on the flood plain of the Hatchie River. The soils formed in loamy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Amagon silt loam, in an area of Chenneby and Amagon soils, frequently flooded; 2.2 miles east of Bolivar, 1.9 miles northwest of the intersection of U.S. Highway 64 and the Hatchie River, 0.6 miles north of the intersection of U.S. Highway 64 and Hyams Road, 100 feet west of a farm path, in a wooded area (atlas sheet 17):

A—0 to 8 inches; brown (10YR 4/3) silt loam; common fine distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) and common fine prominent strong brown (7.5YR 4/6) mottles; weak medium granular structure; very friable; many very fine and fine roots; strongly acid; clear smooth boundary.

Eg—8 to 15 inches; light gray (10YR 7/2) silt loam; common fine prominent yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine medium and coarse roots; few fine and medium manganese concretions; strongly acid; clear wavy boundary.

Btg1—15 to 30 inches; light brownish gray (10YR 6/2) silty clay loam; common medium prominent yellowish brown (10YR 5/8) and dark yellowish brown (10YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine medium and coarse roots; common distinct grayish brown (10YR 5/2) and gray (10YR 5/1) clay films on faces of peds; few distinct light gray (10YR 7/1) silt coatings on faces of some peds; common fine and medium manganese concretions; strongly acid; clear wavy boundary.

Btg2—30 to 60 inches; light brownish gray (10YR 6/2) silty clay loam; common medium and coarse prominent yellowish brown (10YR 5/6) mottles; moderate coarse subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; few distinct light gray (10YR 7/1) silt coatings on faces of some peds; common fine manganese concretions; strongly acid.

Reaction is moderately acid to strongly acid.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. It has few to common mottles in shades of gray, brown, or red. Texture is silt loam.

The Eg horizon, if it occurs, has hue of 10YR, value of 6 or 7, and chroma of 2. It has few to common mottles in shades of brown or red. Texture is silt loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 2. It has few to many mottles in shades of brown or red. Texture is silty clay loam or silt loam.

Bibb Series

The Bibb series consists of very deep, poorly drained soils on flood plains throughout the county. The soils formed in stratified loamy and sandy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Bibb silt loam, in an area of Rosebloom and Bibb soils, frequently flooded; 3.4 miles east of Whiteville, 1.3 miles west of the intersection of Tennessee Highway 100 and Vildo Road, 0.6 mile west of the intersection of Tennessee Highway 100 and Cross Road, 50 feet south of Tennessee Highway 100, in a wooded area (atlas sheet 8):

A—0 to 4 inches; brown (10YR 4/3) silt loam; many fine and medium prominent yellowish red (5YR 4/6) and many coarse faint grayish brown (10YR 5/2) mottles; weak medium granular structure; very friable; common fine and medium roots; strongly acid; abrupt wavy boundary.

Cg1—4 to 14 inches; olive gray (5Y 4/2) silt loam; few fine prominent strong brown (7.5YR 4/6) mottles; massive; friable; few fine and very fine roots; very strongly acid; clear wavy boundary.

Cg2—14 to 22 inches; olive gray (5Y 5/2) sandy loam that has thin strata of yellowish brown (10YR 5/4) loamy sand; few fine prominent brownish yellow (10YR 6/6) and yellowish brown (10YR 5/6) mottles; massive; very strongly acid; clear wavy boundary.

Cg3—22 to 60 inches; olive gray (5Y 4/2) silt loam that has strata of loamy sand; massive; very strongly acid.

Reaction is strongly acid or very strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 3 or less. Some pedons have a layer of overwash that has hue of 10YR, value of 4, and chroma of 4. Some pedons have few to many mottles in shades of brown, red, or gray. Texture is silt loam, loam, or sandy loam.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue. Some pedons have few to many mottles in shades of brown, red, and yellow. Texture is variable. Most pedons have stratified layers of silt loam, loam, sandy loam, and loamy sand.

Chenneby Series

The Chenneby series consists of very deep, somewhat poorly drained soils on flood plains throughout the county. The soils formed in loamy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Chenneby silty clay loam, in an area of Chenneby and Amagon soils, frequently flooded; 3.6 miles west of Toone, 2.7 miles east of the intersection of Tennessee Highway 100 and Vildo Road, 0.3 mile west of the intersection of Tennessee Highway 100 and the Hatchie River, 100 feet north of the intersection of Tennessee Highway 100 and a logging road, in a wooded area (atlas sheet 8):

A—0 to 4 inches; brown (10YR 4/3) silty clay loam; common fine distinct light yellowish brown (10YR 6/4) mottles; moderate fine and medium granular structure; very friable; common very fine and fine and few medium and coarse roots; few fine manganese concretions; strongly acid; clear smooth boundary.

A2—4 to 9 inches; dark yellowish brown (10YR 4/4) silty clay loam; few medium prominent light brownish gray (2.5Y 6/2) mottles; moderate medium granular structure; very friable; few very fine, fine, and medium roots; few fine and medium manganese concretions; strongly acid; clear smooth boundary.

Bw1—9 to 19 inches; brown (10YR 4/3) silty clay loam; common medium and coarse distinct light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few very fine, fine, and medium roots; common fine and medium manganese concretions; strongly acid; clear wavy boundary.

Bw2—19 to 26 inches; brown (10YR 5/3) silty clay loam; many fine and medium distinct light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few very fine and fine roots; common fine and medium manganese concretions; strongly acid; gradual wavy boundary.

Bg1—26 to 38 inches; light brownish gray (10YR 6/2) silty clay loam; many medium faint brown (10YR 5/3) and common fine prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few very fine roots; common fine manganese concretions; strongly acid; gradual wavy boundary.

Bg2—38 to 60 inches; light brownish gray (10YR 6/2) silty clay loam; common fine prominent yellowish brown (10YR 5/8) and brownish yellow (10YR 6/6) mottles; weak and moderate coarse subangular blocky structure; friable; common fine manganese concretions; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Some pedons have few to many mottles in shades of gray or brown. Texture is silty clay loam or silt loam.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. It has few to many mottles in shades of

gray. Some pedons have few to many mottles in shades of brown. Texture is silty clay loam or silt loam.

The Bg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many mottles in shades of brown or yellow. Some pedons have an evenly mottled pattern in shades of gray, brown, and yellow. Texture is silty clay loam or silt loam.

Chickasaw Series

The Chickasaw series consists of deep, well drained soils on uplands in the eastern part of the county. The soils formed in clayey marine deposits consisting of horizontally bedded, weakly cemented claystone, siltstone, or sandstone. Slopes range from 12 to 45 percent.

Typical pedon of Chickasaw loam, 20 to 45 percent slopes, 1.9 miles west of Hornsby, 0.8 mile southeast of the intersection of U.S. Highway 64 and Hornsby Road, 0.2 mile southeast of the intersection of U.S. Highway 64 and Donaldson Road, 400 feet east of Donaldson Road, in a wooded area (atlas sheet 18):

A—0 to 4 inches; dark brown (10YR 3/3) loam; weak medium granular structure; very friable; many fine and common medium roots; moderately acid; clear wavy boundary.

E—4 to 9 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; very friable; many fine and common medium roots; strongly acid; clear wavy boundary.

Bt—9 to 12 inches; yellowish brown (10YR 5/6) clay loam; few fine distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and common medium roots; few prominent reddish brown (5YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Btss1—12 to 29 inches; pale brown (10YR 6/3) clay; common medium prominent strong brown (7.5YR 5/8) mottles; strong medium subangular and angular blocky structure; firm, moderately sticky, moderately plastic; few fine and medium roots; common slickensides and pressure faces; common prominent reddish brown (5YR 5/4) clay films on faces of peds; about 15 percent, by volume, easily deformable channers of pale brown (10YR 6/3) claystone; strongly acid; gradual wavy boundary.

Btss2—29 to 37 inches; brown (10YR 5/3) clay; few medium prominent strong brown (7.5YR 5/8) and reddish brown (5YR 4/4) mottles; weak medium subangular blocky structure parting to weak fine platy; firm, very sticky, very plastic; few very fine roots between peds and channers; common slickensides and pressure faces; common prominent reddish brown (5YR 5/4) clay films on faces of peds; about 30 percent, by volume, easily deformable channers of brown (10YR 5/3) claystone; very strongly acid; gradual wavy boundary.

C—37 to 47 inches; brown (10YR 5/3) clay; few fine prominent dark reddish brown (2.5YR 3/4) mottles; weak fine and medium platy structure; firm, very sticky, very plastic; few very fine roots between peds and channers; few slickensides and pressure faces; about 60 percent, by volume, easily deformable channers and about 10 percent channers of brown (10YR 5/3) claystone; very strongly acid; gradual wavy boundary.

Cr—47 to 60 inches; brown (10YR 5/3), highly fractured, horizontally bedded claystone.

The depth to the Cr horizon ranges from 40 to 60 inches. Reaction is strongly acid or very strongly acid. Common to many highly weathered and easily deformable channers of claystone are in the Bt and C horizons. These channers are not considered coarse fragments.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is loam, fine sandy loam, or very fine sandy loam. The Ap horizon, if it occurs, has hue of 7.5 YR or 5YR, value of 4 or 5, and chroma of 4 or 6. Texture is clay loam, silty clay, or clay.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. Some pedons have few to many mottles in shades of brown, red, or yellow. Texture is loam, very fine sandy loam, or fine sandy loam.

The Bt and Btss horizons have hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 3 to 8. Some pedons have few to many mottles in shades of brown, yellow, red, or gray. In some pedons, the horizons have an evenly mottled pattern in shades of brown, yellow, red, or gray. Texture is clay loam, silty clay, or clay.

The C horizon has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 3 to 6. It has few to many mottles in shades of brown, red, gray, or yellow. Some pedons have a low-chroma matrix or have mottles that are inherited from the parent material and are not redoximorphic features. Texture is clay or silty clay that has many highly weathered, easily deformable claystone fragments.

The Cr horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 2 or 3. It is level-bedded, highly fractured claystone. In some pedons, it is interbedded with thin strata of weakly cemented sandstone or siltstone.

Deanburg Series

The Deanburg series consists of very deep, well drained soils on stream terraces in all parts of the county. The soils formed in a silty mantle over loamy alluvium. Slopes range from 2 to 8 percent.

Typical pedon of Deanburg clay loam, 5 to 8 percent slopes, severely eroded, 3.4 miles east of Hickory Valley,

1.6 miles north of the intersection of Lake Hardeman Road and Van Buren Road, 1,500 feet west of Avent Cemetery, in a pasture (atlas sheet 20):

Ap—0 to 4 inches; brown (7.5YR 4/4) clay loam; moderate fine and medium granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.

Bt1—4 to 20 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; strongly acid; clear smooth boundary.

Bt2—20 to 30 inches; yellowish red (5YR 4/6) loam; weak medium subangular blocky structure; friable; common fine roots; few faint yellowish red (5YR 4/6) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt3—30 to 37 inches; strong brown (7.5YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

2E and Bt—37 to 60 inches; stratified reddish yellow (7.5YR 7/6) sand in the E part and yellowish red (5YR 4/6) sandy loam lamellae in the Bt part; single grained; loose in the E part; weak fine subangular blocky structure; very friable in the Bt part; strongly acid.

Reaction is strongly acid or very strongly acid, except for the surface layer in areas that have been limed. Depth to the discontinuity ranges from 30 to 50 inches.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6. Texture is silt loam or loam. In severely eroded areas, the texture is clay loam or sandy clay loam.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is silt loam or loam.

The Bt horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6. Texture is loam, clay loam, or sandy clay loam.

The 2Bt horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Texture is sandy loam or sandy clay loam.

The 2E and Bt horizon consists of alternating strata of loamy sand or sand in the E part and sandy loam lamellae in the Bt part. The E material has hue of 10YR or 7.5YR, value of 6 or 7, and chroma of 6 or 8. The lamellae, or Bt materials, have colors in shades of brown, red, or yellow. They range from 1/2 inch to 2 inches in thickness.

Enville Series

The Enville series consists of very deep, somewhat poorly drained soils on flood plains in all parts of the county. The soils formed in loamy and sandy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Enville silt loam, occasionally flooded, 3.2 miles southeast of Toone, 1.6 miles east of the intersection of Pine Top Road and Tennessee Highway 18, 0.6 mile northeast of the intersection of Pine Top Road and Maroney Road, 75 feet southeast of Maroney Road, in a field (atlas sheet 10):

Ap—0 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak medium granular structure; very friable; strongly acid; abrupt smooth boundary.

C—10 to 15 inches; brown (10YR 5/3) loam; many medium faint light gray (10YR 7/2) and pale brown (10YR 6/3) mottles; massive; friable; common fine iron and manganese nodules; strongly acid; clear wavy boundary.

Cg1—15 to 34 inches; light gray (10YR 7/2) sandy loam; many medium faint pale brown (10YR 6/3) mottles; massive; friable; many fine iron and manganese nodules and common fine iron and manganese concretions; very strongly acid; clear wavy boundary.

Cg2—34 to 41 inches; light gray (10YR 7/2) sandy loam; many medium faint pale brown (10YR 6/3) and common medium prominent reddish yellow (7.5YR 6/8) mottles; massive; friable; many fine and medium iron and manganese nodules and concretions; very strongly acid; clear wavy boundary.

C'—41 to 60 inches; pale brown (10YR 6/3) loamy sand; common medium faint light brownish gray (10YR 6/2) mottles; single grained; loose; many fine iron and manganese nodules and concretions; very strongly acid.

Some pedons have buried soils between a depth of 20 and 50 inches. Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

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

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. Some pedons have few to many mottles in shades of gray, brown, or red. Texture is silt loam, loam, sandy loam, or loamy sand or is stratified layers of these textures.

The Cg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Some pedons have few to many mottles in shades of brown, red, or yellow. Texture is loam, fine sandy loam, sandy loam, or loamy sand. Many pedons have stratified layers of these textures.

The C' horizon, if it occurs, has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. It has few to many mottles in shades of gray, brown, or red. Texture is silt loam, loam, fine sandy loam, sandy loam, or loamy sand.

Falkner Series

The Falkner series consists of very deep, somewhat poorly drained soils on uplands and stream terraces in the southeastern part of the county. The soils formed in a silty mantle and underlying clayey marine deposits. Slopes range from 0 to 2 percent.

Typical pedon of Falkner silt loam, 0 to 2 percent slopes, 0.8 mile south of Middleton, 0.7 mile north of the intersection of Tennessee Highway 125 and Tennessee Highway 57, about 900 feet southeast of the intersection of Tennessee Highway 125 and Pulse Drive, in a field (atlas sheet 31):

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak medium granular structure; very friable; few fine manganese concretions; moderately acid; abrupt smooth boundary.

Bt1—8 to 15 inches; light yellowish brown (10YR 6/4) silty clay loam; few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; few faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine manganese concretions; strongly acid; clear smooth boundary.

Bt2—15 to 26 inches; light yellowish brown (2.5Y 6/4) silty clay loam; common fine prominent yellowish brown (10YR 5/6), common medium distinct light brownish gray (2.5Y 6/2), and few medium prominent gray (10YR 6/1) mottles; moderate coarse subangular blocky structure; firm, moderately sticky, moderately plastic; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine manganese concretions; strongly acid; clear smooth boundary.

2Btg1—26 to 35 inches; light brownish gray (2.5Y 6/2) silty clay; many coarse distinct light yellowish brown (2.5Y 6/4), many medium distinct light brownish gray (10YR 6/2), and common fine prominent strong brown (7.5YR 4/6) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, moderately sticky, moderately plastic; few distinct light yellowish brown (2.5Y 6/4) clay films on faces of peds; common fine manganese concretions; very strongly acid; clear smooth boundary.

2Btg2—35 to 60 inches; gray (10YR 6/1) clay; common fine and medium prominent strong brown (7.5YR 4/6) mottles; moderate coarse prismatic structure parting to moderate medium subangular and angular blocky; firm, very sticky, very plastic; common pressure faces and slickensides; common distinct gray (10YR 5/1) clay films on faces of peds; few fine manganese concretions; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

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

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. It has few to many mottles in shades of gray and brown. Texture is silty clay loam or silt loam.

The 2Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many mottles in shades of brown, red, yellow, and gray. Texture is silty clay, clay, or silty clay loam.

Iuka Series

The Iuka series consists of very deep, moderately well drained soils on flood plains throughout the county. The soils formed in stratified loamy and sandy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Iuka silt loam, occasionally flooded, 0.7 mile northeast of Saulsbury, 1.1 miles west of the intersection of Tennessee Highway 57 and Brotherton Road, 750 feet southeast of the intersection of Tennessee Highway 57 and Saulsbury-Hickory Valley Road, in a field (atlas sheet 29):

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak medium granular structure; very friable; slightly acid; clear smooth boundary.

C1—5 to 11 inches; yellowish brown (10YR 5/4) loam; common fine faint brown (10YR 5/3) and common fine prominent reddish brown (5YR 4/4) mottles; few manganese stains and nodules; massive; friable; strongly acid; clear wavy boundary.

C2—11 to 18 inches; brown (10YR 5/3) sandy loam that has strata and pockets of strong brown (7.5YR 5/6) loamy sand; massive; friable; many fine iron and manganese stains and nodules; strongly acid; abrupt wavy boundary.

C3—18 to 28 inches; pale brown (10YR 6/3) silt loam that has strata of brown (10YR 5/3) sandy loam; common medium distinct light brownish gray (2.5Y 6/2) and common fine prominent yellowish red (5YR 4/6) mottles; massive; friable; common fine manganese stains; few fine chips of black charcoal; friable; strongly acid; abrupt wavy boundary.

C4—28 to 34 inches; strong brown (7.5YR 5/8) sandy loam that has pockets of light brownish gray (2.5Y 6/2) silt loam; massive; very friable; many fine iron and manganese stains; strongly acid; abrupt wavy boundary.

Cg1—34 to 38 inches; light brownish gray (2.5Y 6/2) silt loam; common coarse prominent strong brown (7.5YR 5/8) and olive (5Y 4/3) mottles; massive; friable; common fine manganese concretions and nodules; strongly acid; abrupt wavy boundary.

Cg2—38 to 60 inches; grayish brown (2.5Y 5/2) loamy

sand; common coarse distinct olive (5Y 5/6) mottles; single grained; loose; few fine manganese stains; strongly acid.

Reaction is strongly acid or very strongly throughout the profile, except for the surface layer in areas that have been limed.

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

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. Most pedons have few to common mottles in shades of brown, yellow, gray, and red. Most pedons have stratified layers of silt loam, loam, fine sandy loam, or sandy loam.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or less or is neutral in hue. Most pedons have few to many mottles in shades of red, brown, and yellow. Texture is variable and includes silt loam, loam, loamy sand, or sandy loam.

Kurk Series

The Kurk series consists of very deep, somewhat poorly drained soils on stream terraces and in concave positions on uplands. The soils formed in silty alluvium over loess. Slopes range from 0 to 3 percent.

Typical pedon of Kurk silt loam, 0 to 3 percent slopes, 3.1 miles southeast of Bolivar, 1.3 miles southeast of the intersection of Tennessee Highway 64 and Hyams Road, 1.2 miles southeast of the intersection of Hyams Road and Breeden Road, 100 feet west of Breeden Road, in a field (atlas sheet 17):

Ap—0 to 7 inches; yellowish brown (10YR 5/4) silt loam; few fine distinct light brownish gray (10YR 6/2) and few medium prominent reddish yellow (7.5YR 7/8) mottles; weak fine granular structure; friable; many fine roots; slightly acid; clear wavy boundary.

Bw—7 to 25 inches; light yellowish brown (10YR 6/4) silt loam; many medium prominent reddish yellow (7.5YR 7/8) and light brownish gray (2.5Y 6/2) mottles; weak fine subangular blocky structure; friable; many fine and few medium roots; moderately acid; clear wavy boundary.

Eg—25 to 30 inches; light brownish gray (2.5Y 6/2) silt loam; common medium prominent light yellowish brown (10YR 6/4) and reddish yellow (7.5YR 7/8) mottles; weak fine and medium subangular blocky structure; friable; many fine and few medium roots; strongly acid; clear wavy boundary.

Btg—30 to 48 inches; light brownish gray (2.5Y 6/2) silty clay loam; many coarse prominent light yellowish brown (10YR 6/4) and reddish yellow (7.5YR 7/8) mottles; weak medium subangular blocky structure; friable; common very fine and few medium roots; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt—48 to 60 inches; light yellowish brown (10YR 6/4) silt loam; common coarse distinct light brownish gray (2.5Y 6/2) and common fine prominent reddish yellow (7.5YR 7/8) mottles; weak medium prismatic structure parting to weak medium and coarse subangular blocky; friable; few fine and medium roots; common distinct grayish brown (2.5Y 5/2) and yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Some pedons have few to common mottles in shades of brown, gray, or yellow. Texture is silt loam.

The Bw or Bt horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6. It has few to many mottles in shades of gray, brown, or yellow. Texture is silt loam.

The Eg horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 or less. It has few to many mottles in shades of brown or yellow. Texture is silt loam. Some pedons have a BE horizon instead of the Eg horizon.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or less. It has few to many mottles in shades of brown or yellow. Texture is silty clay loam or silt loam.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6. It has few to many mottles in shades of gray, brown, or yellow. In many pedons, this horizon does not have a matrix color but has an evenly mottled pattern in shades of brown, gray, or yellow. Texture is silt loam or silty clay loam. Many pedons have a 2BC or 2C horizon with colors similar to those of the Bt horizon. Texture is silt loam, loam, or silty clay loam.

Lexington Series

The Lexington series consists of very deep, well drained soils on uplands throughout the county. The soils formed in 2 to 4 feet of loess over loamy marine deposits. Slopes range from 0 to 12 percent.

Typical pedon of Lexington silt loam, 2 to 5 percent slopes, eroded, 1.8 miles north of Whiteville, 0.8 mile south of the intersection of Walker Road and Cedar Chapel-Whiteville Road, 0.7 mile north of the intersection of Fayette Corner Road and Cedar Chapel-Whiteville Road, 75 feet west of Cedar Chapel-Whiteville Road, in a field (atlas sheet 7):

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt

loam; few medium faint yellowish brown (10YR 5/4) mottles; weak medium granular structure; very friable; common very fine and fine roots; moderately acid; clear smooth boundary.

Bt1—5 to 19 inches; strong brown (7.5YR 5/6) silty clay loam; few fine prominent dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; few very fine and fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—19 to 26 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint strong brown (7.5YR 4/6) clay films on faces of peds; few fine manganese stains; strongly acid; clear smooth boundary.

Bt3—26 to 37 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few prominent pale brown (10YR 6/3) clay depletions along faces of peds; few faint strong brown (7.5YR 4/6) clay films on faces of peds; strongly acid; clear wavy boundary.

2Bt4—37 to 60 inches; brown (7.5YR 4/4) loam; moderate medium and coarse subangular blocky structure; friable; few pale brown (10YR 6/3) clay depletions along faces of peds; common distinct reddish brown (5YR 4/4) clay films on faces of peds; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam. Severely eroded pedons have texture of silty clay loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam or silty clay loam.

The 2Bt horizon has hue of 7.5YR to 2.5YR, value of 4 or 5, and chroma of 4 to 8. Texture is loam, clay loam, sandy clay loam, or sandy loam. It has few to common clay depletions along vertical faces of peds.

Loring Series

The Loring series consists of very deep, moderately well drained soils in the northwestern part of the county. The soils formed in loess. They have a fragipan in the lower part of the subsoil. Slopes range from 0 to 5 percent.

Typical pedon of Loring silt loam, 2 to 5 percent slopes, eroded, 1.8 miles west of Whiteville, 1.8 miles west of the intersection of Cedar Chapel-Whiteville Road and Whiteville-Mt. Moriah Road, 0.2 mile northeast of the intersection of Duncan Lane and Whiteville-Mt. Moriah Road, 25 feet northeast of the intersection of a farm path and Whiteville-Mt. Moriah Road, in a field (atlas sheet 7):

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; many very fine and common medium roots; moderately acid; abrupt smooth boundary.

Bt1—7 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—15 to 22 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few faint brown (7.5YR 4/4) clay films on faces of peds; common fine manganese stains on faces of peds; strongly acid; clear smooth boundary.

Btx1—22 to 45 inches; dark yellowish brown (10YR 4/4) silt loam; many coarse distinct light brownish gray (10YR 6/2) and common fine prominent strong brown (7.5YR 5/8) mottles; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between prisms; few distinct brown (7.5YR 4/4) clay films on faces of prisms; vertical seams 1/2 inch to 2 inches wide between prisms of light gray (10YR 7/2) silt loam and silt; common fine manganese stains and concretions; brittle in more than 60 percent of the mass; strongly acid; gradual smooth boundary.

Btx2—45 to 60 inches; brown (7.5YR 4/4) silt loam; common medium prominent light brownish gray (10YR 6/2) and common medium distinct pale brown (10YR 6/3) mottles; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; few distinct brown (10YR 5/3) clay films on faces of prisms; vertical seams 1/2 inch to 2 inches wide between prisms of light gray (10YR 7/2) silt loam and silt; common fine and medium manganese nodules and concretions; brittle in more than 60 percent of the mass; strongly acid.

The depth to the fragipan ranges from 18 to 28 inches. Reaction is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

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

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Some pedons have few to common mottles in shades of brown. Some pedons have gray mottles in the lower part of the Bt horizon. Texture is silty clay loam or silt loam.

The Btx horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. Most pedons have mottles in various shades of yellow, brown, and gray, or consist of an

evenly mottled pattern in shades of these colors. Texture is silt loam or silty clay loam.

Lucy Series

The Lucy series consists of very deep, well drained soils on uplands in all parts of the county. The soils formed in sandy and loamy marine deposits. Slopes range from 20 to 45 percent.

Typical pedon of Lucy loamy sand, in an area of Smithdale and Lucy soils, 20 to 45 percent slopes; 4.9 miles east of Saulsbury, 1.5 miles north of the intersection of Tennessee Highway 57 and Hickory Valley Road, 0.5 mile southeast of the intersection of Hickory Valley Road and Porter Road, 50 feet east of Hickory Valley Road, in a wooded area (atlas sheet 25):

A—0 to 4 inches; dark grayish brown (10YR 4/2) loamy sand; weak medium granular structure; very friable; many very fine and few fine and medium roots; very strongly acid; abrupt wavy boundary.

E1—4 to 18 inches; brown (7.5YR 5/4) loamy sand; weak medium granular structure; very friable; many very fine and few fine roots; strongly acid; clear wavy boundary.

E2—18 to 33 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; common fine roots; very strongly acid; abrupt wavy boundary.

Bt1—33 to 44 inches; yellowish red (5YR 5/8) sandy clay loam; moderate fine subangular blocky structure; friable; few fine roots; common prominent red (2.5YR 4/6) clay films on faces of peds; few fine clay depletions of light brown (7.5YR 6/4) uncoated sand grains; very strongly acid; clear smooth boundary.

Bt2—44 to 60 inches; yellowish red (5YR 5/6) sandy clay loam; common medium distinct brown (7.5YR 5/4) mottles; moderate medium subangular blocky structure; friable; common distinct red (2.5YR 4/6) clay films on faces of peds; few clay depletions of light brown (7.5YR 6/4) uncoated sand grains; very strongly acid.

The thickness of the A and E horizons ranges from 20 to 40 inches. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Texture is loamy sand, sand, or loamy fine sand.

The E horizon has hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 3 to 8. Texture is loamy sand or sand.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Some pedons have few to common mottles in shades of yellow or brown. Texture is sandy clay loam or clay loam.

Luverne Series

The Luverne series consists of very deep, well drained soils on the highly dissected uplands in the eastern part of the county. The soils formed in stratified loamy and clayey marine deposits. Slopes range from 5 to 45 percent.

Typical pedon of Luverne sandy loam, in an area of Luverne and Smithdale sandy loams, 20 to 45 percent slopes; 4.7 miles north of Hornsby, 2.7 miles north of the intersection of Pine Top Road and Tull Road, 0.7 mile southwest of the intersection of Hackney Road and Tull Road, 400 feet west of Tull Road, in a wooded area (atlas sheet 14):

A—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; many fine and very fine roots; strongly acid; clear wavy boundary.

E—3 to 9 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; many fine and very fine roots; strongly acid; clear wavy boundary.

Bt1—9 to 22 inches; yellowish red (5YR 5/6) clay; moderate coarse subangular blocky structure parting to moderate fine angular blocky; firm; few fine and medium roots; common distinct reddish brown (5YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—22 to 32 inches; yellowish red (5YR 4/6) clay; few fine prominent brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/8) mottles; moderate coarse subangular blocky structure; firm; few fine roots; many distinct reddish brown (5YR 4/4) clay films on faces of peds; strongly acid; gradual wavy boundary.

BC—32 to 41 inches; mottled red (2.5YR 4/6), brownish yellow (10YR 6/6), and yellowish red (5YR 5/6) clay loam; weak coarse subangular blocky structure; friable; few very fine roots; many prominent yellowish red (5YR 4/6) and prominent reddish brown (5YR 4/4) clay films in root channels and on faces of peds; strongly acid; gradual wavy boundary.

C—41 to 60 inches; mottled red (2.5YR 4/8), light gray (10YR 7/1), and yellowish brown (10YR 5/8) sandy clay loam that has strata of sandy loam and light gray (10YR 7/1) silty clay; moderate medium platy structure; few very fine roots; few fine ironstone fragments; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed. In some pedons, the content of ironstone fragments ranges from 1 to 10 percent, by volume, throughout the solum.

The A or Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4. Texture is sandy loam, fine sandy loam, or loam. Severely eroded pedons have hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6. Texture is clay loam, sandy clay loam, or loam.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is sandy loam, fine sandy loam, or loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Some pedons have few to many mottles in shades of red, yellow, brown, or olive. A few pedons have gray or white mottles that are inherited from the parent material. Texture is clay, clay loam, or sandy clay.

The BC horizon has hue of 7.5YR, 5YR, or 2.5YR, value of 4 or 5, and chroma of 4 to 8 or consists of an evenly mottled pattern in shades of red, yellow, brown, or gray. Some pedons have few to many mottles in shades of red, yellow, brown, or olive. Other pedons have gray or white mottles that are inherited from the parent material. Texture is clay loam or sandy clay loam.

The C horizon commonly consists of a mottled pattern in shades of red, yellow, brown, or gray. It is stratified layers of sandy clay loam, clay loam, sandy clay, silty clay, clay, loam, or sandy loam.

Nugent Series

The Nugent series consists of very deep, excessively drained soils on flood plains in the southwestern part of the county. The soils formed in sandy alluvial sediments. Slopes range from 0 to 2 percent.

Typical pedon of Nugent loamy sand, occasionally flooded, 2.1 miles southeast of Hickory Valley, 1.1 miles southwest of the intersection of Charles Road and Lake Hardeman Road, 1.2 miles east of the intersection of Furtrell Road and Grand Junction-Hickory Valley Road, 100 feet south of Furtrell Road, in a field (atlas sheet 24):

Ap—0 to 6 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; few fine and very fine roots; very strongly acid; abrupt wavy boundary.

C1—6 to 9 inches; strong brown (7.5YR 5/6) coarse sand; single grained; loose; few fine roots; very strongly acid; abrupt wavy boundary.

C2—9 to 15 inches; stratified brown (7.5YR 5/4) silt loam and very pale brown (10YR 7/4) sand; massive; very friable; strongly acid; abrupt smooth boundary.

C3—15 to 32 inches; strong brown (7.5YR 5/6) sand; single grained; loose; strongly acid; abrupt smooth boundary.

C4—32 to 60 inches; stratified strong brown (7.5YR 5/6) and dark brown (7.5YR 4/4) sand; single grained; loose; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 4. Some pedons have a layer of recent overwash in hue of 7.5YR or 5YR. Texture is loamy sand or sand.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. Some pedons have few to many mottles in shades of brown, red, or yellow. In many pedons, all or part of the C horizon does not have a distinct matrix color but is stratified in shades of brown, red, or yellow. Texture is dominantly sand or loamy sand that has thin strata of silt loam, sandy loam, fine sandy loam, or loam.

Ochlockonee Series

The Ochlockonee series consists of very deep, well drained soils on flood plains throughout the county. The soils formed in loamy alluvium. Slopes range from 0 to 3 percent.

Typical pedon of Ochlockonee silt loam, rarely flooded, 7.4 miles north of Whiteville, 1.8 miles northeast of the intersection of Sammons Road and Cedar Chapel-Whiteville Road, 0.2 mile east of the intersection of Sammons Road and Johns Road, 250 feet south of Johns Road, in a field (atlas sheet inset 1):

Ap—0 to 8 inches; brown (7.5YR 5/4) silt loam; weak medium granular structure; very friable; few fine roots; strongly acid; abrupt smooth boundary.

C1—8 to 14 inches; strong brown (7.5YR 5/6) loamy sand that has strata of pale brown (10YR 6/3) silt loam; single grained; loose; strongly acid; clear smooth boundary.

C2—14 to 18 inches; stratified brown (10YR 5/3), pale brown (10YR 6/3), and strong brown (7.5YR 5/6) silt loam; massive; very friable; few fine iron and manganese stains; strongly acid; clear smooth boundary.

C3—18 to 30 inches; brown (7.5YR 4/4) silt loam that has thin strata of pale brown (10YR 6/3) sandy loam; massive; friable; many fine iron and manganese stains on horizontal bedding planes; strongly acid; clear smooth boundary.

C4—30 to 43 inches; yellowish red (5YR 5/6) fine sandy loam; common medium faint reddish brown (5YR 4/4) mottles; weak medium subangular blocky structure; friable; many fine iron and manganese stains on faces of peds; strongly acid; clear wavy boundary.

C5—43 to 60 inches; yellowish red (5YR 5/6) sandy loam; common medium distinct reddish brown (5YR 4/3) mottles; weak fine and medium subangular blocky structure; very friable; strongly acid.

Reaction is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. Texture is silt loam, sandy loam, or loam.

The C horizon is stratified and has hue of 10YR, 7.5YR, or 5YR, value of 4 to 6, and chroma of 3 to 6. Some pedons have few to common mottles in shades of red, brown, yellow, or gray. The horizon consists of alternating strata of silt loam, sandy loam, loam, or loamy sand.

Providence Series

The Providence series consists of very deep, moderately well drained soils on uplands and on stream terraces throughout the county. The soils formed in a moderately deep mantle of loess and in the underlying loamy marine sediments. They have a fragipan in the subsoil. Slopes range from 2 to 12 percent.

Typical pedon of Providence silty clay loam, 5 to 8 percent slopes, severely eroded, 1 mile south of Cloverport, 2.2 miles northwest of the intersection of Tennessee Highway 100 and Old Bolivar Road, 0.3 mile west of the intersection of Tennessee Highway 138 and Old Bolivar Road, in a field (atlas sheet 4):

Ap—0 to 5 inches; dark yellowish brown (10YR 4/6) silty clay loam; few medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; common fine roots; moderately acid; abrupt smooth boundary.

Bt1—5 to 18 inches; strong brown (7.5YR 5/6) silty clay loam; common medium prominent pale brown (10YR 6/3) and common medium faint strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; common fine manganese stains; very strongly acid; clear wavy boundary.

Btx1—18 to 29 inches; strong brown (7.5YR 5/6) silt loam; common medium prominent light brownish gray (10YR 6/2) and common fine distinct strong brown (7.5YR 5/8) mottles; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots in vertical seams; many distinct brown (7.5YR 4/4) clay films on prism faces; vertical seams 1/2 inch to 2 inches wide between prisms of light gray (10YR 7/2) and pinkish gray (7.5YR 7/2) silt loam and silt; common fine manganese stains and concretions; brittle in more than 60 percent of the mass; very strongly acid; gradual smooth boundary.

2Btx2—29 to 45 inches; strong brown (7.5YR 5/6) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; common distinct yellowish red (5YR 4/6) clay films on faces of prisms; vertical seams 1/2 inch to 2 inches wide between prisms of light gray (10YR 7/2) and pinkish gray (7.5YR 7/2) silt loam and silt; common fine manganese nodules and concretions; brittle in more than 60 percent of the mass; strongly acid; gradual smooth boundary.

2Btx3—45 to 60 inches; yellowish red (5YR 5/6) loam; few fine distinct reddish yellow (7.5YR 7/6) mottles; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; common distinct reddish brown (5YR 4/4) clay films on faces of prisms; vertical seams 1/2 inch to 2 inches wide between prisms of pinkish gray (7.5YR 7/2) silt loam and silt; common fine manganese nodules and concretions; brittle in more than 60 percent of the mass; strongly acid.

Reaction ranges from strongly acid to very strongly acid throughout the profile, except for the surface layer in areas that have been limed. The depth to the fragipan commonly ranges from 18 to 24 inches. Many severely eroded pedons have a fragipan within a depth of 12 inches.

The Ap or A horizon has hue of 10YR, value of 4, and chroma of 3 to 6. Severely eroded pedons have hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam or silty clay loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. Some pedons have few to common mottles in shades of brown, yellow, or red. Texture is silty clay loam or silt loam.

The Btx and 2Btx horizons have hue of 7.5YR, 10YR, or 5YR, value of 4 or 5, and chroma of 6 or 8. It has few to many mottles in shades of gray, brown, or red. Texture is silty clay loam, silt loam, loam, or sandy loam.

The 2Bt horizon, if it occurs, has colors in shades of red, brown, and yellow. Texture is sandy loam or sandy clay loam.

Rosebloom Series

The Rosebloom series consists of very deep, poorly drained soils on flood plains of the Hatchie River and its major tributary streams. The soils formed in moderately fine textured alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Rosebloom silty clay loam, in an area of Rosebloom and Bibb soils, frequently flooded; 1.3 miles northwest of Pocahontas, 0.9 mile southeast of the intersection of Pea Vine Road and Buster King Road, 0.4 mile southeast of the intersection of Muddy Creek and Pea Vine Road, 300 feet northeast of intersection of Pea Vine Road and a logging road, in a wooded area (atlas sheet 31):

A—0 to 7 inches; brown (10YR 4/3) silty clay loam; common coarse distinct grayish brown (10YR 5/2) and common fine prominent strong brown (7.5YR 5/6) mottles; weak fine and medium granular structure; very friable; strongly acid; abrupt smooth boundary.

Bg—7 to 25 inches; light brownish gray (10YR 6/2) silty clay loam; many fine and medium prominent yellowish red (5YR 5/8) mottles; weak medium and coarse subangular blocky structure; friable; few fine manganese concretions; very strongly acid; gradual wavy boundary.

Cg1—25 to 40 inches; gray (10YR 5/1) silty clay loam; many medium prominent yellowish red (5YR 5/8) mottles; weak coarse subangular blocky structure; friable; few fine manganese concretions; very strongly acid; gradual wavy boundary.

Cg2—40 to 60 inches; light gray (5Y 6/1) silty clay loam; few medium prominent yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Some pedons have few to many mottles in shades of gray, brown, or red. In some pedons, the A horizon is mottled in shades of these colors and does not have a dominant matrix color. Texture is silty clay loam or 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 to many mottles in shades of brown, yellow, red, olive, or gray. Some pedons have bluish or greenish mottles. Texture is silty clay loam or silt loam.

The Cg horizon, if it occurs, has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2 or is neutral in hue. It has few to many mottles in shades of brown, yellow, red, or olive. Many pedons have bluish or greenish mottles. Texture is silty clay loam or silt loam.

Smithdale Series

The Smithdale series consists of very deep, well drained soils on uplands in all parts of the county. The soils formed in loamy marine sediments. Slopes range from 5 to 45 percent.

Typical pedon of Smithdale sandy loam, in an area of Smithdale and Lucy soils, 20 to 45 percent slopes; 1.9 miles southeast of Hickory Valley, 1.8 miles east of the intersection of Tennessee Highway 18 and Lake Hardeman Road, 0.6 mile northwest of intersection of Van Buren Road and Lake Hardeman, 0.2 mile north of the intersection of Lake Hardeman Road and a gravel road, 100 feet west of the gravel road, in a wooded area (atlas sheet 25):

A—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; moderate fine granular structure; very friable; common fine and medium roots; strongly acid; abrupt wavy boundary.

E—4 to 14 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine subangular blocky structure; very friable; few fine and medium roots; very strongly acid; clear wavy boundary.

Bt1—14 to 23 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common faint yellowish red (5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—23 to 36 inches; yellowish red (5YR 5/6) sandy clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; friable; common faint yellowish red (5YR 5/6) clay films on faces of peds; few black stains; strongly acid; gradual wavy boundary.

Bt3—36 to 51 inches; red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; friable; few prominent brown (7.5YR 5/4) and reddish brown (5YR 4/4) clay films on faces of peds; few black stains; strongly acid; gradual wavy boundary.

Bt4—51 to 60 inches; red (2.5YR 4/6) sandy loam; weak very coarse subangular blocky structure; friable; sand grains bridged and coated with red (2.5YR 5/6) clay; few pockets of uncoated reddish yellow (7.5YR 6/6) sand; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is sandy loam or fine sandy loam. Severely eroded pedons have colors in shades of brown or yellowish red and texture of loam or sandy loam.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is sandy loam or fine sandy loam.

The upper part of the Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, clay loam, or loam. The lower part of the Bt horizon has the same range in colors as the upper part. Texture is sandy loam or loam. Some pedons have a few mottles in shades of red or brown. A few pedons have thin bands of ironstone fragments or rounded quartzite gravel.

Steens Series

The Steens series consists of very deep, somewhat poorly drained soils on low stream terraces. The soils formed in loamy alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Steens loam, 1.4 miles southwest

of Middleton, 0.8 mile northeast of the intersection of Old Enon Road and White Road, 0.4 mile northwest of White Road and Sasser Road, in a field (atlas sheet 30):

Ap—0 to 7 inches; brown (10YR 4/3) loam; common coarse distinct grayish brown (10YR 5/2) mottles; moderate medium granular structure; very friable; common fine roots; common fine manganese concretions; slightly acid; abrupt smooth boundary.

Bt—7 to 22 inches; mottled yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common faint yellowish brown (10YR 5/4) and gray (10YR 5/1) clay films on faces of peds; common fine manganese concretions; strongly acid; clear wavy boundary.

Btg1—22 to 39 inches; light brownish gray (10YR 6/2) sandy clay loam; common fine and medium prominent yellowish brown (10YR 5/6) and common medium faint light yellowish brown (10YR 6/4) mottles; moderate medium prismatic structure parting to weak medium subangular blocky; friable; common distinct gray (10YR 5/1) clay films on faces of peds; common fine manganese concretions; strongly acid; gradual wavy boundary.

Btg2—39 to 49 inches; light brownish gray (10YR 6/2) clay loam; few medium distinct light yellowish brown (10YR 6/4), few fine prominent yellowish brown (10YR 5/6), and common medium faint gray (10YR 6/1) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common faint light brownish gray (10YR 6/2) clay films on faces of peds; common fine and medium manganese and iron concretions; very strongly acid; gradual wavy boundary.

Btg3—49 to 60 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium faint gray (10YR 6/1) and common fine prominent strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; friable; common faint gray (10YR 6/1) clay films on faces of peds; common fine and medium iron and manganese concretions; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is loam, fine sandy loam, or silt loam.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It has few to many mottles in shades of gray or brown. Texture is fine sandy loam, loam, or silt loam.

The Bt horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6 or consists of an evenly mottled pattern in shades of brown and gray. It has few to many mottles in shades of gray. Texture is sandy clay loam, clay loam, or loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or less. It has few to common mottles in shades of brown, gray, or yellow. Texture is sandy clay loam, clay loam, or loam.

Tippah Series

The Tippah series consists of very deep, moderately well drained soils on uplands in the southern and eastern parts of the county. The soils formed in a mantle of loess over clayey marine deposits. Slopes range from 2 to 12 percent.

Typical pedon of Tippah silt loam, 2 to 5 percent slopes, eroded, 1.1 miles northwest of Middleton, 0.6 mile southwest of the intersection of Ed Norton Road and Tennessee Highway 125, 0.7 mile northwest of the intersection of N. Neely Road and Tennessee Highway 125, 700 feet north of N. Neely Road, in a field (atlas sheet 31):

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; few fine prominent yellowish red (5YR 5/6) mottles; weak medium granular structure; very friable; moderately acid; clear smooth boundary.

Bt1—7 to 17 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable; common distinct reddish brown (5YR 4/4) clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—17 to 22 inches; strong brown (7.5YR 5/6) silty clay loam; few fine prominent pale brown (10YR 6/3) and many coarse distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of peds; common fine manganese and iron concretions; few black stains; very strongly acid; gradual smooth boundary.

Bt3—22 to 28 inches; strong brown (7.5YR 5/6) silty clay loam; common medium distinct pale brown (10YR 6/3), common medium prominent light brownish gray (10YR 6/2), and few medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure parting to moderate fine angular blocky; friable; common faint brown (10YR 5/3) clay films on faces of peds; common fine manganese and iron concretions; very strongly acid; clear smooth boundary.

2Bt4—28 to 42 inches; mottled dark yellowish brown (10YR 4/4) and grayish brown (10YR 5/2) silty clay; moderate fine prismatic structure parting to moderate

medium angular blocky; firm, sticky, plastic; common pressure faces and few slickensides; many distinct gray (10YR 5/1) and dark gray (10YR 4/1) clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt5—42 to 60 inches; mottled strong brown (7.5YR 5/6), gray (10YR 6/1), and yellowish brown (10YR 5/6) clay; weak medium prismatic structure parting to moderate coarse angular blocky; firm, moderately sticky, moderately plastic; common pressure faces and slickensides; many prominent dark yellowish brown (10YR 4/4) and gray (10YR 5/1) clay films on faces of peds; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam. Severely eroded pedons have texture of silty clay loam.

The Bt horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6. Some pedons have few to many mottles in shades of brown. The lower part of the Bt horizon has few to many mottles in shades of gray. Texture is silty clay loam.

The 2Bt horizon commonly consists of a evenly mottled pattern in shades of red, brown, and gray. Texture is dominantly silty clay or clay.

Urbo Series

The Urbo series consists of very deep, somewhat poorly drained soils on flood plains in the southeastern part of the county along the Hatchie River and its major tributaries. The soils formed in clayey alluvium. Slopes range from 0 to 3 percent.

Typical pedon of Urbo silty clay loam, occasionally flooded, 0.7 mile northeast of Hornsby, 0.5 mile north of the intersection of U.S. Highway 64 and Cox-Hornsby Road, 400 feet west of Cox-Hornsby Road, in a field (atlas sheet 18):

Ap—0 to 5 inches; brown (10YR 4/3) silty clay loam; weak medium granular structure; very friable; moderately acid; abrupt smooth boundary.

Bw—5 to 12 inches; grayish brown (10YR 5/3) silty clay; common fine prominent strong brown (7.5YR 5/6) and common medium distinct light brownish gray (2.5Y 6/2) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; few fine manganese concretions; strongly acid; clear smooth boundary.

Bg2—12 to 22 inches; light brownish gray (2.5Y 6/2) silty clay; few fine prominent strong brown (7.5YR 5/6) mottles; moderate medium angular blocky structure; firm, very sticky, very plastic; few faint grayish brown (2.5Y 5/2) pressure faces; common fine and medium manganese concretions; strongly acid; gradual wavy boundary.

Bg3—22 to 60 inches; light brownish gray (2.5Y 6/2) clay; common fine prominent strong brown (7.5YR 5/6) mottles; moderate coarse prismatic structure parting to moderate coarse angular blocky; firm, very sticky, very plastic; few grayish brown (2.5Y 5/2) pressure faces on peds and few grayish brown (2.5Y 5/2) slickensides; few fine and medium manganese concretions; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is silty clay loam.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. Some pedons have an evenly mottled pattern in shades of gray and brown. The horizon has few to many mottles in shades of brown and gray. Texture is silty clay loam, silty clay, or clay.

The Bg horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 1 or 2. It has few to common mottles in shades of brown. Texture is silty clay or clay.

Wilcox Series

The Wilcox series consists of deep, somewhat poorly drained soils on uplands in the eastern part of the county. The soils formed in clayey marine deposits and the underlying claystone and clayey shale. Slopes range from 2 to 15 percent.

Typical pedon of Wilcox silty clay, 2 to 5 percent slopes, severely eroded, 1.2 miles south of Middleton, 0.4 mile south of the intersection of Sasser Road and Mott Road, 0.3 mile north of the intersection of Mott Road and Tennessee Highway 57, 250 feet east of Mott Road, in a field (atlas sheet 31):

Ap—0 to 5 inches; brown (10YR 4/3) silty clay; weak fine subangular blocky structure; friable; few fine roots; strongly acid; abrupt smooth boundary.

Bt—5 to 16 inches; mottled yellowish brown (10YR 5/4), light brownish gray (10YR 6/2), and strong brown (7.5YR 5/6) silty clay; moderate fine angular blocky structure; firm, slightly sticky and slighty plastic; few fine roots; common pressure faces; common distinct grayish brown (10YR 5/2) and brown (10YR 5/3) clay films on faces of peds; few fine manganese concretions; strongly acid; gradual smooth boundary.

Bgss1—16 to 29 inches; light brownish gray (2.5Y 6/2) clay; common fine prominent strong brown (7.5YR 5/6) mottles; moderate fine prismatic structure parting to moderate medium angular blocky; firm, sticky and

plastic; many pressure faces and a few slickensides; common distinct gray (10YR 5/1) and light gray to gray (10YR 6/1) clay films on faces of peds; few fine manganese concretions; very strongly acid; gradual smooth boundary.

Bgss2—29 to 41 inches; light brownish gray (2.5Y 6/2) clay; common medium and coarse prominent strong brown (7.5YR 5/8) mottles; moderate medium prismatic structure parting to moderate medium angular blocky; firm, very sticky and very plastic; common pressure faces and slickensides; common distinct grayish brown (2.5Y 5/2) and gray (10YR 5/1) clay films on faces of peds; few fine manganese concretions; very strongly acid; clear wavy boundary.

Bgss3—41 to 47 inches; grayish brown (2.5Y 5/2) clay; few medium and coarse prominent strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure; very firm, sticky and plastic; common slickensides along prism faces; very strongly acid; gradual wavy boundary.

Cg—47 to 55 inches; mottled grayish brown (2.5Y 5/2), dark gray (10YR 4/1), and strong brown (7.5YR 5/8) clay; massive; very firm; common easily deformable channers of brown (10YR 5/3) claystone; very strongly acid.

Cr—55 to 60 inches; grayish brown (2.5Y 5/2) and dark gray (2.5Y 4/0) claystone.

The depth to a Cr horizon consisting of claystone or clayey shale ranges from 40 to 60 inches. Reaction is strongly acid to extremely acid throughout the profile, except for the surface layer in areas that have been limed.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Some pedons have few mottles in shades of brown or gray. Texture is silty clay or silty clay loam.

The Bt horizon commonly has an evenly mottled pattern in shades of brown, gray, and red. Texture is silty clay or clay.

The Bgss horizon has hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 2. Some pedons have few to many mottles in shades of brown, red, or yellow. Texture is clay or silty clay.

The BCg horizon, if it occurs, has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 2 or has an evenly mottled pattern in shades of gray, brown, and red. Texture is clay or silty clay.

The Cg horizon has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 2. Some pedons have few to many mottles in shades of brown or red. Some pedons do not have a matrix color and have an evenly mottled pattern in shades of gray, brown, or red. Texture is clay or silty clay.

The Cr horizon is gray, dark gray, and olive, highly weathered claystone.

Formation of the Soils

The combined influence of the five factors of soil formation, which are parent material, climate, topography, living organisms, and time, determine the characteristics and properties of a soil.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The character of this mass affects the kind of profile that develops and the degree of development.

The three general types of parent material in Hardeman County are loamy coastal plain deposits, loess (windblown silt), and alluvium. To better understand these three types of parent materials, knowledge of what the area was like before, during, and after the last ice age should be considered. Before the soils that exist today in Hardeman County began to form, the entire area was under water. What we know today as the Gulf of Mexico extended up the Mississippi Valley into what is now southern Illinois. About a million years ago, the earth's climate cooled somewhat, and great ice sheets formed and slowly advanced over what is now Canada and the northern part of the United States. As more and more of the earth's water was added to the glaciers, the sea level dropped and eventually exposed the area now known as Hardeman County. The materials that made up the ancient sea floor then began to be transformed into the soils we see today.

Geologists have recognized about 7 different distinct layers of these ancient sea deposits in Hardeman County. They range in age from roughly about 1 to 90 million years. These materials are referred to as coastal plain deposits. They were deposited in successive layers, one on top of the other, with the lowest layer being the oldest. As running water has slowly eroded and cut into the landscape, it has exposed the various layers of coastal plain deposits in different parts of the county. They are mostly loamy but range from sand to clay, and they have a low content of silt. Generally, reddish soils formed in these deposits. Smithdale, Luverne, Chickasaw, Wilcox, and Lucy are all soils that formed entirely in coastal plain deposits. They remain exposed on some ridgetops and on most of the hillsides.

As the earth's climate began to warm again, the glaciers started to melt. Large amounts of water carried away soil particles that had been frozen in the ice and picked up soil material as it rushed over the ground. These soil materials were moved down the Mississippi River, and many were deposited on the flood plains. Prevailing winds from the northwest picked up some of the medium-sized, silty soil particles and moved them eastward. A thin mantle, ranging from 1 to 5 feet thick, of this wind-blown soil material, or loess, was deposited over parts of Hardeman County. As a result, the soils in these areas have formed in two types of parent material. The lower layers were formed in the coastal plain deposits, and the upper layers were formed in the more recent loess deposits. The lower layers are remnants of the older soils that formed in the area before it was covered by loess. Soils that were formed in these two types of parent material are Lexington, Providence, Tippah, and Falkner. Loring soils formed entirely in loess.

As rivers and streams flooded, they deposited soil material on their flood plains. As they cut deeper into the landscape, some of the alluvial deposits were left in positions that are no longer are susceptible to stream overflow. These positions are called terraces. The old alluvial deposits then began to be transformed into the soils that today are on terraces throughout the county. These soils are younger than the soils that formed in coastal plain deposits. Adaton, Steens, Deanburg, and Kurk soils formed on stream terraces.

Material continues to be washed from the uplands and accumulates in the bottomlands as alluvium. Ochlockonee, Iuka, Enville and Bibb soils formed in alluvium derived from loess and loamy coastal plain deposits. Chenneby and Rosebloom soils formed in alluvium derived from loess and loamy coastal plain deposits. Nugent soils formed in alluvium derived from sandy coastal plain deposits, and Urbo soils formed in alluvium derived from clayey coastal plain deposits *(3)*.

Climate

Climate is an important factor in soil formation that generally affects large geographic areas. For example, the climate has affected soils in the cool, dry northern midwestern areas of the United States differently than it has affected soils in the warm, humid southeastern areas. The climate in the survey area varies little and is not

responsible for differences between the soils. It has generally affected all the soils in the survey area in a similar manner. The high rainfall causes intense leaching, and the soluble and colloidal materials move downward through the soils. Some accumulate in the lower layers, and others move out of the soil. Weathering and translocation of materials is nearly continuous because soils are frozen for only short periods and to a shallow depth. The warm temperatures tend to promote the rapid decomposition of organic matter, and the organic acids that are produced encourage the development of clay minerals and the removal of carbonates.

Living Organisms

Insects, bacteria, fungi, and higher plants and animals are important factors in the formation of soils. Through their various activities, they mix the soil and add and recycle organic matter, nitrogen, and other nutrients, thus affecting soil structure, porosity, and natural fertility.

A dense stand of forest originally covered Hardeman County. In the well drained uplands, the dominant trees were probably oak, hickory, yellow-poplar, shortleaf pine, and American chestnut. The good drainage and aeration in the soils in these areas facilitated deep, uniform rooting by plants (except where fragipans formed); maximum activity of microorganisms; and suitable sites for dens for burrowing animals. In the wetter bottom land areas, the dominant trees were probably water-tolerant oaks, sycamore, beech, black willow, gum, ash, maple, and cypress. The seasonal high water table in these soils results in periods when the soils are water-logged and aeration is poor. Rooting by plants is thus restricted. During wet periods, the activity of microorganisms is restricted to anaerobic species. Most burrowing animals are not active in these areas, although crawfish are common in places.

Before Hardeman County was settled, the native vegetation had a greater influence on the formation of soils than had animal activity. Presently, however, humans are significantly affecting the formation of soils by clearing forests and tilling the soil; by introducing new plants; by applying fertilizer; by adding chemicals for insects, disease, and weed control; and by improving drainage and controlling floods. The acceleration of erosion in the uplands has resulted in the loss of several inches to several feet of soil material. The content of organic matter in the surface layer has been greatly reduced. Much of the soil material that eroded from the uplands has been carried out of the county in rivers and streams. Some has been deposited in bottom lands throughout the county. As a result, the present surface of many of the bottom land areas is 2 to 4 feet higher than when man first cultivated the uplands. Bottom land soils often have an old, buried surface layer below the more recent deposits. Even in many of the areas that have remained in woodland, humans influence soil formation through practices such as selective harvesting, improving timber stands, and planting pure stands of preferred species. Changes in structure, color, content of organic matter and nutrients, and thickness of the surface horizon or plow layer, are visible results of human influences.

Relief

Relief has affected soil development in Hardeman County mostly by its effect on the amount of surface water that runs off some areas and accumulates in others. Ridgetops generally have a slow to moderate rate of runoff, thus allowing much of the water that falls on them to move downward through the soils, carrying clay particles and soluble and colloidal materials with it. As the slope increases on hillsides, the rate of runoff increases and the amount of water that filters through the soils decreases. Soils below the uplands on terraces and flood plains receive water through precipitation, stream overflow, and runoff of surface water from the soils in higher positions. Runoff is generally slow in these smoother areas, and the soils generally have larger quantities of water moving through them.

Relief affects the rate of runoff and subsequently affects the rate of erosion. The loess that was deposited over much of the county accumulated on many of the broad, gently sloping ridgetops, but it was washed off the steep hillsides as fast as it was deposited in many places. For this reason, the soils that formed on hillsides have only a thin layer of loess or have none at all. Additionally, because less water enters soils on steep slopes than soils on flats, less water is available for plant growth. As a result, the type and density of native plant species differs on each type of site. As drainage varies, so does aeration and the environment of plant roots, microorganisms, and chemical activity. These differences resulted in differences in soils.

Time

The degree to which the four previously discussed factors of soil formation affect the development of a soil is dependent on time. Generally, as the length of time increases, the amount of soil horizon development also increases. The length of time needed for a soil to show strong development varies depending on the other soil-forming factors. Generally, less time is required if the climate is warm and humid, the vegetation is lush, and the parent material is loamy.

Soils such as Iuka, Enville, Nugent, and Ochlockonee

soils are among the youngest in Hardeman County. They are on flood plains that regularly receive additions of soil material from adjacent uplands and stream overflow. They have weakly expressed soil horizons.

Upland soils, such as Smithdale, Chickasaw, and Luverne soils, are among the oldest soils. Soils such as Lexington, Providence, and Tippah soils have a lower horizon that formed in coastal plain deposits, which are much older than the upper horizon, which formed in more recently deposited loess.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	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.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claystone. A terrigenous sedimentary rock comprised of clay-sized particles formed by compaction, deposition, or a combination of these two processes.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

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.

Culmination of the mean annual increment (CMAI).

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

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.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological

factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

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.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one

horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

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.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

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 downward 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.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5

Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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 from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

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.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site

based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

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. Classes for complex slopes are as follows:

Level	0 to 2 percent
Undulating	2 to 8 percent
Rolling	8 to 12 percent
Hilly	12 to 20 percent
Steep	25 to 45 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (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.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

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."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across

sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

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."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

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.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1961-90 at Bolivar, Tennessee)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	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	46.9	26.2	36.6	73	0	22	3.97	1.97	5.71	6	1.7
February	51.8	29.7	40.8	77	7	40	4.48	2.30	6.40	7	1.2
March	61.8	38.8	50.3	83	19	137	5.46	3.24	7.43	8	0.5
April	71.9	48.0	59.9	88	28	318	5.25	3.22	7.08	7	0.0
May	79.4	56.1	67.8	92	38	549	5.40	3.26	7.31	7	0.0
June	86.9	64.2	75.6	97	48	767	3.66	2.01	5.34	5	0.0
July	90.1	68.1	79.1	99	54	900	3.71	2.03	5.20	5	0.0
August	89.3	66.1	77.6	99	52	857	3.45	1.59	5.04	5	0.0
September	83.3	59.5	71.4	96	40	640	3.99	1.73	5.91	5	0.0
October	73.5	46.2	59.8	89	28	318	3.02	1.56	4.49	4	0.0
November	61.7	38.3	50.0	82	18	121	4.86	2.61	6.84	6	0.1
December	51.1	30.4	40.8	74	6	36	5.64	2.87	8.05	7	0.1
Yearly:											
Average	70.6	47.6	59.1	---	---	---	---	---	---	---	---
Extreme	105	-11	---	101	-2	---	---	---	---	---	---
Total	---	---	---	---	---	4,706	52.88	45.55	59.49	72	3.5

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

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1961-90 at Bolivar, 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--	Mar. 26	Apr. 6	Apr. 15
2 years in 10 later than--	Mar. 18	Apr. 1	Apr. 11
5 years in 10 later than--	Mar. 4	Mar. 21	Apr. 3
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 5	Oct. 23	Oct. 7
2 years in 10 earlier than--	Nov. 10	Oct. 29	Oct. 13
5 years in 10 earlier than--	Nov. 20	Nov. 9	Oct. 24

TABLE 3.--GROWING SEASON

(Recorded in the period 1961-90 at Bolivar, 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	231	210	185
8 years in 10	241	217	191
5 years in 10	260	231	202
2 years in 10	280	246	214
1 year in 10	290	253	220

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ad	Adaton silt loam	2,739	0.6
Ao	Adaton silt loam, overwash	1,714	0.4
CA	Chenneby and Amagon soils, frequently flooded	21,768	5.1
CE	Chenneby and Enville soils, frequently flooded	8,780	2.0
Cn	Chenneby silt loam, occasionally flooded	13,732	3.2
CwE3	Chickasaw silty clay, 12 to 25 percent slopes, severely eroded	8,817	2.1
CwF	Chickasaw loam, 20 to 45 percent slopes	5,635	1.3
DeB2	Deanburg silt loam, 2 to 5 percent slopes, eroded	248	0.1
DeB3	Deanburg clay loam, 2 to 5 percent slopes, severely eroded	1,864	0.4
DeC3	Deanburg clay loam, 5 to 8 percent slopes, severely eroded	4,879	1.1
En	Enville silt loam, occasionally flooded	6,954	1.6
Fk	Falkner silt loam	966	0.2
Gu	Gullied land-Hapludults complex, very steep	12,156	2.8
Iu	Iuka silt loam, occasionally flooded	11,482	2.7
Kr	Kurk silt loam	5,716	1.3
LeA	Lexington silt loam, 0 to 2 percent slopes	1,549	0.4
LeB2	Lexington silt loam, 2 to 5 percent slopes, eroded	16,783	3.9
LeB3	Lexington silty clay loam, 2 to 5 percent slopes, severely eroded	12,349	2.9
LeC	Lexington silt loam, 5 to 8 percent slopes	343	0.1
LeC3	Lexington silty clay loam, 5 to 8 percent slopes, severely eroded	10,286	2.4
LgC	Lexington-Providence silt loams, 5 to 8 percent slopes	373	0.1
LgC3	Lexington-Providence silt loams, 5 to 8 percent slopes, severely eroded	2,040	0.5
LoA	Loring silt loam, 0 to 2 percent slopes	360	0.1
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	4,632	1.1
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded	2,058	0.5
LSD	Luverne and Smithdale sandy loam, 8 to 12 percent slopes	2,108	0.5
LSD3	Luverne and Smithdale soils, 8 to 12 percent slopes, severely eroded	3,027	0.7
LSE3	Luverne and Smithdale soils, 12 to 25 percent slopes, severely eroded	15,858	3.7
LSF	Luverne and Smithdale sandy loams, 20 to 45 percent slopes	29,548	6.9
Nu	Nugent loamy sand, occasionally flooded	1,661	0.4
Oc	Ochlockonee silt loam, rarely flooded	9,686	2.3
PrB2	Providence silt loam, 2 to 5 percent slopes, eroded	1,662	0.4
PrB3	Providence silty clay loam, 2 to 5 percent slopes, severely eroded	3,748	0.9
PrC	Providence silt loam, 5 to 8 percent slopes	202	*
PrC3	Providence silty clay loam, 5 to 8 slopes, severely eroded	8,006	1.9
PrD	Providence silt loam, 8 to 12 percent slopes	429	0.1
PrD3	Providence silty clay loam, 8 to 12 percent slopes, severely eroded	8,432	2.0
RB	Rosebloom and Bibb soils, frequently flooded	15,454	3.6
RO	Rosebloom and Bibb soils, occasionally flooded	2,707	0.6
SaE3	Smithdale loam, 12 to 25 percent slopes, severely eroded	43,527	10.1
SeD	Smithdale and Lexington soils, 8 to 12 percent slopes	5,673	1.3
SeD3	Smithdale and Lexington soils, 8 to 12 percent slopes, severely eroded	20,778	4.8
SMF	Smithdale and Lucy soils, 20 to 45 percent slopes	60,930	14.2
SpD	Smithdale-Providence complex, 5 to 12 percent slopes	1,341	0.3
SpD3	Smithdale-Providence complex, 5 to 12 percent slopes, severely eroded	6,631	1.5
St	Steens loam	1,673	0.4
ThB2	Tippah silt loam, 2 to 5 percent slopes, eroded	556	0.1
ThB3	Tippah silt loam, 2 to 5 percent slopes, severely eroded	2,656	0.6
ThC3	Tippah silt loam, 5 to 8 percent slopes, severely eroded	3,575	0.8
ThD	Tippah silt loam, 8 to 12 percent slopes	240	0.1
ThD3	Tippah silt loam, 8 to 12 percent slopes, severely eroded	3,169	0.7
TuD3	Tippah-Luverne complex, 5 to 12 percent slopes, severely eroded	4,468	1.0
Ua	Udarents, loamy	323	0.1
UC	Urbo and Chenneby soils, frequently flooded	4,519	1.1
Ur	Urbo silty clay loam, occasionally flooded	3,322	0.8
WcB3	Wilcox silty clay, 2 to 5 percent slopes, severely eroded	804	0.2
WcC3	Wilcox silty clay, 5 to 8 percent slopes, severely eroded	1,909	0.4
WcD3	Wilcox silty clay, 8 to 15 percent slopes, severely eroded	1,955	0.5
	Water	1,000	0.2
	Total	429,800	100.0

* Less than 0.1 percent.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

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

Soil name and map symbol	Land capability	Corn	Soybeans	Cotton	Grain sorghum	Wheat	Tall fescue-ladino	Common bermudagrass
		Bu	Bu	Lbs	Bu	Bu	AUM*	AUM*
Ad, Ao---------- Adaton	IIIw	75	33	550	80	30	7.5	---
CA---------- Chenneby and Amagon	Vw	---	---	---	---	---	---	6.5
CE---------- Chenneby and Enville	IVw	---	20	---	50	---	6.5	---
Cn---------- Chenneby	IIw	125	40	700	110	40	9.0	7.0
CwE3---------- Chickasaw	VIIe	---	---	---	---	---	---	---
CwF---------- Chickasaw	VIIe	---	---	---	---	---	---	---
DeB2---------- Deanburg	IIe	90	32	700	80	45	6.5	7.5
DeB3---------- Deanburg	IIIe	75	30	600	70	40	6.0	7.5
DeC3---------- Deanburg	IVe	65	25	450	60	30	5.5	7.0
En---------- Enville	IIw	120	40	700	110	40	9.0	---
Fk---------- Falkner	IIw	90	33	625	85	35	8.0	9.0
Gu---------- Gullied land-Hapludults	VIIe	---	---	---	---	---	---	---
Iu---------- Iuka	IIw	125	45	750	110	45	9.0	10.5
Kr---------- Kurk	IIw	105	40	750	90	50	8.5	9.5
LeA---------- Lexington	I	130	45	850	110	55	9.0	10.5
LeB2---------- Lexington	IIe	125	42	800	95	50	8.5	10.0
LeB3---------- Lexington	IIIe	100	30	700	80	44	8.0	9.5
LeC---------- Lexington	IIIe	95	32	725	90	46	8.0	9.5

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Cotton	Grain sorghum	Wheat	Tall fescue-ladino	Common bermudagrass
		Bu	Bu	Lbs	Bu	Bu	AUM*	AUM*
LeC3--Lexington	IVe	70	24	550	65	40	7.5	9.0
LgC--Lexington-Providence	IIIe	85	30	650	80	41	7.0	9.5
LgC3--Lexington-Providence	IVe	65	22	550	60	35	6.5	9.0
LoA--Loring	IIw	110	40	800	100	53	9.0	10.5
LoB2--Loring	IIe	100	40	750	90	48	8.5	10.0
LoB3--Loring	IIIe	80	30	650	80	42	7.5	9.5
LSD--Luverne and Smithdale	IVe	55	17	400	50	30	6.5	8.0
LSD3--Luverne and Smithdale	VIe	---	---	---	---	---	5.5	7.0
LSE3--Luverne and Smithdale	VIIe	---	---	---	---	---	---	---
LSF--Luverne and Smithdale	VIIe	---	---	---	---	---	---	---
Nu--Nugent	IIIs	60	25	400	75	25	4.5	7.0
Oc--Ochlockonee	I	130	45	850	110	55	9.0	10.5
PrB2--Providence	IIe	95	35	700	80	44	8.0	9.5
PrB3--Providence	IIIe	70	25	600	65	35	7.0	9.0
PrC--Providence	IIIe	75	32	625	70	38	7.5	9.0
PrC3--Providence	IVe	65	20	500	55	32	6.5	8.5
PrD--Providence	IVe	60	20	500	55	32	6.5	8.5
PrD3--Providence	VIe	---	---	---	---	---	6.0	7.5

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Cotton	Grain sorghum	Wheat	Tall fescue-ladino	Common bermudagrass
		Bu	Bu	Lbs	Bu	Bu	AUM*	AUM*
RB--Rosebloom and Bibb	Vw	---	---	---	---	---	---	---
RO--Rosebloom and Bibb	IIIw	70	25	---	75	---	6.0	---
SaE3--Smithdale	VIIe	---	---	---	---	---	---	---
SeD--Smithdale and Lexington	IVe	55	18	450	52	32	7.0	8.5
SeD3--Smithdale and Lexington	VIe	---	---	---	---	---	6.0	7.5
SMF--Smithdale and Lucy	VIIe	---	---	---	---	---	---	---
SpD--Smithdale-Providence	IVe	55	18	450	52	32	6.5	8.5
SpD3--Smithdale-Providence	VIe	---	---	---	---	---	5.5	7.0
St--Steens	IIw	90	30	600	85	35	7.5	8.5
ThB2--Tippah	IIe	85	35	700	80	44	8.0	9.5
ThB3--Tippah	IIIe	70	25	600	65	38	7.0	9.0
ThC3--Tippah	IVe	60	20	500	55	32	6.5	8.5
ThD--Tippah	IVe	60	20	500	55	32	6.5	8.5
ThD3--Tippah	VIe	---	---	---	---	---	6.0	7.5
TuD3--Tippah-Luverne	VIe	---	---	---	---	---	6.0	7.5
Ua. Udarents								
UC--Urbo and Chenneby	IVw	---	20	---	25	---	6.0	---
Ur--Urbo	IIw	90	25	600	80	30	6.5	7.5

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Cotton	Grain sorghum	Wheat	Tall fescue-ladino	Common bermudagrass
		Bu	Bu	Lbs	Bu	Bu	AUM*	AUM*
WcB3---------- Wilcox	IIIe	40	20	350	50	28	6.0	7.5
WcC3---------- Wilcox	VIe	---	---	---	---	---	---	5.0
WcD3---------- Wilcox	VIIe	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
Ao	Adaton silt loam, overwash
Cn	Chenneby silt loam, occasionally flooded
DeB2	Deanburg silt loam, 2 to 5 percent slopes, eroded
En	Enville silt loam, occasionally flooded
Fk	Falkner silt loam
Iu	Iuka silt loam, occasionally flooded
Kr	Kurk silt loam
LeA	Lexington silt loam, 0 to 2 percent slopes
LeB2	Lexington silt loam, 2 to 5 percent slopes, eroded
LoA	Loring silt loam, 0 to 2 percent slopes
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded
Oc	Ochlockonee silt loam, rarely flooded
PrB2	Providence silt loam, 2 to 5 percent slopes, eroded
St	Steens loam
ThB2	Tippah silt loam, 2 to 5 percent slopes, eroded
Ur	Urbo silty clay loam, occasionally flooded

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

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

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
Ad, Ao Adaton	Slight	Moderate	Moderate	Severe	Loblolly pine Water oak Sweetgum	80 80 80	114 72 86	American sycamore, yellow-poplar, willow oak, swamp chesnut oak, sweetgum, cherrybark oak.
CA**: Chenneby	Slight	Moderate	Severe	Severe	Loblolly pine Sweetgum Water oak Yellow-poplar American sycamore	100 100 100 100 100	157 143 100 129 157	Willow oak, cherrybark oak, swamp chesnut oak, green ash, shagbark hickory, Nuttall oak, American sycamore.
Amagon	Slight	Moderate	Severe	Severe	Cherrybark oak Eastern cottonwood Water oak Willow oak Nuttall oak Green ash	90 100 100 100 100 80	114 129 100 100 143 57	Baldcypress, sweetgum, swamp chesnut oak, swamp tupelo, black willow, Nuttall oak.
CE**: Chenneby	Slight	Moderate	Severe	Severe	Loblolly pine Sweetgum Water oak Yellow-poplar American sycamore	100 100 100 100 100	157 143 100 129 157	Green ash, cherrybark oak, yellow-poplar, swamp chesnut oak, pin oak, American sycamore.
Enville	Slight	Moderate	Severe	Severe	Yellow-poplar Sweetgum Water oak	100 100 95	114 143 86	Yellow-poplar, green ash, cherrybark oak, swamp chesnut oak, pin oak, sweetgum, American sycamore.
Cn Chenneby	Slight	Moderate	Moderate	Severe	Loblolly pine Sweetgum Water oak Yellow-poplar American sycamore	100 100 100 100 100	157 143 100 129 157	Nuttall oak, yellow-poplar, shagbark hickory, sweetgum, swamp chesnut oak, green ash, American sycamore.
CwE3 Chickasaw	Moderate	Severe	Severe	Moderate	Shortleaf pine White oak Eastern redcedar	41 67 40	43 43 43	White oak, shortleaf pine, chestnut oak, eastern redcedar, Virginia pine.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
CwF Chickasaw	Moderate	Severe	Moderate	Moderate	Shortleaf pine White oak Eastern redcedar	41 67 40	43 43 43	Eastern redcedar, Virginia pine.
DeB2 Deanburg	Slight	Slight	Slight	Moderate	Southern red oak Mockernut hickory White oak Sweetgum Cherrybark oak	70 --- 70 90 80	57 --- 57 100 86	Loblolly pine, white oak, mockernut hickory, cherrybark oak.
DeB3, DeC3 Deanburg	Slight	Slight	Moderate	Moderate	Southern red oak Mockernut hickory Sweetgum	70 --- 90	57 --- 100	White oak, cherrybark oak, loblolly pine, mockernut hickory.
En Enville	Slight	Moderate	Slight	Severe	Yellow-poplar Sweetgum Water oak	100 100 95	114 143 86	Yellow-poplar, American sycamore, sweetgum, swamp chesnut oak, green ash, shagbark hickory.
Fk Falkner	Slight	Moderate	Slight	Moderate	Loblolly pine Shortleaf pine Sweetgum	85 75 90	114 114 100	Yellow-poplar, American sycamore, swamp chesnut oak, green ash, shagbark hickory, sweetgum.
Iu Iuka	Slight	Moderate	Slight	Severe	Loblolly pine Sweetgum Eastern cottonwood Water oak	100 100 105 100	129 143 143 100	American sycamore, sweetgum, swamp chesnut oak, green ash, cherrybark oak, pin oak, yellow-poplar.
Kr Kurk	Slight	Moderate	Slight	Moderate	Cherrybark oak White oak Hickory Red maple Southern red oak Sweetgum	85 80 85 75 80 90	100 57 --- 43 57 100	Cherrybark oak, sweetgum, green ash, Nuttall oak, loblolly pine, yellow-poplar.
LeA, LeB2, LeB3 Lexington	Slight	Slight	Slight	Moderate	Southern red oak Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Yellow-poplar	70 80 80 70 89 90	57 86 114 114 100 86	Cherrybark oak, yellow-poplar, loblolly pine, shortleaf pine, southern red oak.
LeC, LeC3 Lexington	Moderate	Slight	Slight	Moderate	Southern red oak Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Yellow-poplar	70 80 80 70 89 90	57 86 114 114 100 86	Cherrybark oak, yellow-poplar, loblolly pine, shortleaf pine, southern red oak.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
LgC**, LgC3**:								
Lexington	Moderate	Slight	Slight	Moderate	Southern red oak	70	57	Cherrybark oak,
					Cherrybark oak	80	86	yellow-poplar,
					Loblolly pine	80	114	loblolly pine,
					Shortleaf pine	70	114	shortleaf pine,
					Sweetgum	89	100	southern red oak.
					Yellow-poplar	90	66	
Providence	Moderate	Slight	Slight	Moderate	Loblolly pine	84	114	Cherrybark oak,
					Shortleaf pine	64	100	southern red oak,
					Sweetgum	90	100	sweetgum,
								yellow-poplar.
LoA, LoB2, LoB3- Loring	Slight	Moderate	Slight	Moderate	Southern red oak	74	57	Yellow-poplar,
					Cherrybark oak	86	100	cherrybark oak
					Sweetgum	90	100	southern red oak,
					Loblolly pine	85	114	loblolly pine
					Water oak	82	72	shortleaf pine.
LSD**, LSD3**:								
Luverne	Slight	Moderate	Slight	Moderate	Loblolly pine	81	114	Loblolly pine,
					Shortleaf pine	73	114	white oak,
								hickory, chesnut
								oak, eastern
								redcedar.
Smithdale	Slight	Slight	Slight	Slight	Loblolly pine	80	114	Loblolly pine,
					Shortleaf pine	69	114	white oak,
								hickory, chesnut
								oak, eastern
								redcedar.
LSE3**, LSF**:								
Luverne	Moderate	Moderate	Slight	Moderate	Loblolly pine	81	114	Loblolly pine,
					Shortleaf pine	73	114	shortleaf pine,
								white oak, chesnut
								oak, eastern
								redcedar.
Smithdale	Moderate	Moderate	Slight	Slight	Loblolly pine	80	114	Loblolly pine,
					Shortleaf pine	69	114	shortleaf pine,
								white oak, chesnut
								oak, eastern
								redcedar.
Nu	Slight	Moderate	Moderate	Slight	Loblolly pine	90	129	Loblolly pine,
Nugent					Slash pine	90	157	shortleaf pine,
					Sweetgum	95	114	American sycamore,
					Water oak	85	86	cherrybark oak,
					Willow oak	85	86	yellow-poplar.
Oc	Slight	Slight	Slight	Moderate	Loblolly pine	100	157	Loblolly pine,
Ochlockonee					Eastern cottonwood	100	129	black walnut,
					Yellow-poplar	110	129	American sycamore,
					Slash pine	100	186	cherrybark oak,
					Sweetgum	90	100	yellow-poplar.
					Water oak	80	72	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
PrB2, PrB3---- Providence	Slight	Slight	Slight	Moderate	Loblolly pine----	84	114	Loblolly pine,
					Shortleaf pine----	64	100	shortleaf pine,
					Sweetgum----	90	100	cherrybark oak, southern red oak, sweetgum, yellow-poplar.
PrC, PrC3, PrD, PrD3---- Providence	Moderate	Slight	Slight	Moderate	Loblolly pine----	84	114	Loblolly pine,
					Shortleaf pine----	64	100	shortleaf pine,
					Sweetgum----	90	100	cherrybark oak, southern red oak, sweetgum, yellow-poplar.
RB**:								
Rosebloom----	Slight	Severe	Severe	Severe	Cherrybark oak----	95	129	Swamp chesnut oak,
					Green ash----	95	57	green ash,
					Eastern cottonwood--	100	129	American sycamore,
					Nuttall oak----	95	---	Nuttall oak,
					Water oak----	95	86	water oak, willow
					Willow oak----	90	86	oak, pin oak,
					Sweetgum----	95	114	sweetgum.
					American sycamore---	80	86	
Bibb----	Slight	Severe	Severe	Severe	Loblolly pine----	100	157	Baldcypress,
					Sweetgum----	90	100	sweetgum,
					Water oak----	90	86	green ash, swamp
					Yellow-poplar----	---	---	tupelo.
RO**:								
Rosebloom----	Slight	Moderate	Moderate	Severe	Cherrybark oak----	95	129	Swamp chesnut oak,
					Green ash----	95	57	green ash,
					Eastern cottonwood--	100	129	American sycamore,
					Nuttall oak----	95	---	Nuttall oak, water
					Water oak----	95	86	oak, willow oak,
					Willow oak----	90	86	pin oak, sweetgum.
					Sweetgum----	95	114	
					American sycamore---	80	86	
Bibb----	Slight	Severe	Severe	Severe	Loblolly pine----	100	157	Baldcypress,
					Sweetgum----	90	100	sweetgum,
					Water oak----	90	86	green ash, swamp
					Blackgum----	---	---	tupelo.
					Yellow-poplar----	---	---	
					Atlantic white-cedar	---	---	
SaE3---- Smithdale	Moderate	Moderate	Slight	Slight	Loblolly pine----	80	114	Loblolly pine,
					Shortleaf pine----	69	114	shortleaf pine, white oak, chesnut oak, eastern redcedar.
SeD**, SeD3**:								
Smithdale----	Slight	Slight	Slight	Slight	Loblolly pine----	80	114	Loblolly pine,
					Shortleaf pine----	69	114	shortleaf pine, white oak, chesnut oak, eastern redcedar.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
SeD**, SeD3**:								
Lexington	Moderate	Slight	Slight	Moderate	Southern red oak	70	57	White oak, chesnut oak, loblolly pine, shortleaf pine, eastern redcedar.
					Cherrybark oak	80	86	
					Loblolly pine	80	114	
					Shortleaf pine	70	114	
					Sweetgum	89	100	
					Yellow-poplar	90	86	
SMF**:								
Smithdale	Moderate	Moderate	Slight	Slight	Loblolly pine	80	114	Loblolly pine, shortleaf pine, white oak, chesnut oak, Virginia pine, eastern redcedar.
					Shortleaf pine	69	114	
Lucy	Moderate	Moderate	Moderate	Moderate	Loblolly pine	80	114	Loblolly pine, shortleaf pine, white oak, chesnut oak, Virginia pine, eastern redcedar.
					Longleaf pine	70	86	
SpD**, SpD3**:								
Smithdale	Slight	Slight	Slight	Slight	Loblolly pine	80	114	Loblolly pine, shortleaf pine, white oak, chesnut oak, eastern redcedar.
					Shortleaf pine	69	114	
Providence	Moderate	Slight	Slight	Moderate	Loblolly pine	84	114	Loblolly pine, shortleaf pine, white oak, chesnut oak, eastern redcedar.
					Shortleaf pine	64	100	
					Sweetgum	90	100	
St	Slight	Moderate	Slight	Moderate	Loblolly pine	90	129	Loblolly pine, yellow-poplar, sweetgum, water oak, American sycamore, cherrybark oak.
Steens					Sweetgum	85	86	
					Water oak	90	86	
ThB2, ThB3, ThC3, ThD, ThD3	Slight	Slight	Slight	Moderate	Loblolly pine	78	114	Cherrybark oak, southern red oak, shortleaf pine, loblolly pine, yellow-poplar.
Tippah					Cherrybark oak	95	129	
					Shumard oak	95	72	
					White oak	80	57	
					Sweetgum	90	100	
					Yellow-poplar	90	86	
TuD3**:								
Tippah	Slight	Slight	Slight	Moderate	Loblolly pine	78	114	Cherrybark oak, southern red oak, shortleaf pine, loblolly pine, yellow-poplar.
					Cherrybark oak	95	129	
					Shumard oak	95	72	
					White oak	80	57	
					Sweetgum	90	100	
					Yellow-poplar	90	86	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
TuD3**:								
Luverne	Slight	Moderate	Slight	Moderate	Loblolly pine	81	114	Loblolly pine, shortleaf pine, southern red oak, cherrybark oak, yellow-poplar.
					Shortleaf pine	73	114	
UC**:								
Urbo	Slight	Severe	Severe	Severe	Cherrybark oak	99	143	Sweetgum, American sycamore, willow oak, cherrybark oak, swamp chesnut oak, green ash, eastern cottonwood.
					Green ash	93	57	
					Eastern cottonwood	108	157	
					Sweetgum	98	129	
Chenneby	Slight	Moderate	Moderate	Severe	Loblolly pine	100	157	Willow oak, sweetgum, cherrybark oak, swamp chesnut oak, green ash, eastern cottonwood, American sycamore.
					Sweetgum	100	143	
					Water oak	100	100	
					Yellow-poplar	100	129	
					American sycamore	100	157	
Ur	Slight	Moderate	Moderate	Moderate	Cherrybark oak	99	143	Sweetgum, willow oak, cherrybark oak, eastern cottonwood, swamp chesnut oak, green ash, American sycamore.
Urbo					Eastern cottonwood	108	157	
					Green ash	93	57	
					Sweetgum	98	129	
WcB3, WcC3, WcD3	Slight	Moderate	Moderate	Moderate	Loblolly pine	81	114	Loblolly pine, shortleaf pine, southern red oak, cherrybark oak, yellow-poplar.
Wilcox					Shortleaf pine	68	100	
					Slash pine	85	157	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ad, Ao Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
CA*: Chenneby	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Amagon	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
CE*: Chenneby	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Enville	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Cn Chenneby	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
CwE3 Chickasaw	Severe: slope, percs slowly, too clayey.	Severe: slope, too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey.	Severe: slope, too clayey.
CwF Chickasaw	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope.	Severe: slope.
DeB2 Deanburg	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
DeB3 Deanburg	Slight	Slight	Moderate: slope.	Slight	Slight.
DeC3 Deanburg	Slight	Slight	Severe: slope.	Slight	Slight.
En Enville	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty, flooding.
Fk Falkner	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Gu*: Gullied land. Hapludults.					

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Iu Iuka	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
Kr Kurk	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
LeA Lexington	Slight	Slight	Slight	Severe: erodes easily.	Slight.
LeB2, LeB3 Lexington	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
LeC, LeC3 Lexington	Slight	Slight	Severe: slope.	Severe: erodes easily.	Slight.
LgC*, LgC3*: Lexington	Slight	Slight	Severe: slope.	Severe: erodes easily.	Slight.
Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
LoA Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight	Slight.
LoB2, LoB3 Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Slight.
LSD*, LSD3*: Luverne	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
LSE3*: Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
LSF*: Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Nu Nugent	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: droughty, flooding.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Oc Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Slight.
PrB2, PrB3 Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness.
PrC, PrC3 Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
PrD, PrD3 Providence	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
RB*: Rosebloom	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
RO*: Rosebloom	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
SaE3 Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
SeD*, SeD3*: Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Lexington	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
SMF*: Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SpD*, SpD3*: Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Providence	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
St Steens	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
ThB2, ThB3 Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Slight.
ThC3 Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Slight.
ThD, ThD3 Tippah	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
TuD3*: Tippah	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Luverne	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Ua. Udarents					
UC*: Urbo	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Chenneby	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Ur Urbo	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
WcB3 Wilcox	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, erodes easily.	Severe: too clayey.
WcC3, WcD3 Wilcox	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey, erodes easily.	Severe: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ad, Ao Adaton	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
CA*: Chenneby	Poor	Fair	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair.
Amagon	Fair	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
CE*: Chenneby	Poor	Fair	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair.
Enville	Poor	Fair	Fair	Good	Good	---	Good	Fair	Fair	Good	Good.
Cn Chenneby	Fair	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
CwE3 Chickasaw	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
CwF Chickasaw	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
DeB2 Deanburg	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
DeB3, DeC3 Deanburg	Fair	Fair	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
En Enville	Fair	Good	Good	Good	Good	---	Fair	Fair	Good	Fair	Fair.
Fk Falkner	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Gu*: Gullied land.											
Hapludults.											
Iu Iuka	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
Kr Kurk	Fair	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
LeA, LeB2, LeB3 Lexington	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LeC, LeC3 Lexington	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LgC*, LgC3*: Lexington	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
LgC*, LgC3*: Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
LoA, LoB2, LoB3---- Loring	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LSD*, LSD3*: Luverne	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Smithdale	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
LSE3*: Luverne	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
LSF*: Luverne	Very poor.	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale	Very poor.	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Nu---- Nugent	Fair	Poor	Fair	Fair	Poor	---	Very poor.	Very poor.	Fair	Fair	Very poor.
Oc---- Ochlockonee	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
PrB2, PrB3---- Providence	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
PrC, PrC3, PrD, PrD3---- Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
RB*: Rosebloom	Poor	Fair	Fair	Fair	---	Fair	Good	Good	Fair	Fair	Good.
Bibb	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
RO*: Rosebloom	Poor	Fair	Good	Fair	---	Fair	Good	Good	Fair	Fair	Good.
Bibb	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
SaE3---- Smithdale	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
SeD*, SeD3*: Smithdale	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Lexington	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
SMF*:											
Smithdale	Very poor.	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Lucy	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
SpD*, SpD3*:											
Smithdale	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
St	Good	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
Steens											
ThB2, ThB3	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
Tippah											
ThC3, ThD, ThD3	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Tippah											
TuD3*:											
Tippah	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Luverne	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Ua.											
Udarents											
UC*:											
Urbo	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Fair	Fair	Fair.
Chenneby	Poor	Fair	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair.
Ur	Fair	Good	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
Urbo											
WcB3	Fair	Good	Good	Good	Good	---	Fair	Poor	Good	Good	Poor.
Wilcox											
WcC3, WcD3	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Wilcox											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ad, Ao Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
CA*:						
Chenneby	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Amagon	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
CE*:						
Chenneby	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Enville	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
Cn Chenneby	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Moderate: wetness, flooding.
CwE3 Chickasaw	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope, too clayey.
CwF Chickasaw	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
DeB2, DeB3 Deanburg	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: low strength.	Slight.
DeC3 Deanburg	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
En Enville	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, droughty, flooding.
Fk Falkner	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
Gu*: Gullied land.						

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Gu*: Hapludults.						
Iu---- Iuka	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.
Kr---- Kurk	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
LeA, LeB2, LeB3--- Lexington	Severe: cutbanks cave.	Slight---	Slight---	Slight---	Severe: low strength.	Slight.
LeC, LeC3--- Lexington	Severe: cutbanks cave.	Slight---	Slight---	Moderate: slope.	Severe: low strength.	Slight.
LgC*, LgC3*: Lexington---	Severe: cutbanks cave.	Slight---	Slight---	Moderate: slope.	Severe: low strength.	Slight.
Providence---	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness.
LoA, LoB2, LoB3--- Loring	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
LSD*, LSD3*: Luverne---	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Smithdale---	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
LSE3*, LSF*: Luverne---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Nu---- Nugent	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
Oc---- Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
PrB2, PrB3--- Providence	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
PrC, PrC3--- Providence	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness.
PrD, PrD3--- Providence	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
RB*:						
Rosebloom	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
RO*:						
Rosebloom	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
SaE3 Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SeD*, SeD3*:						
Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Lexington	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
SMF*:						
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SpD*, SpD3*:						
Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Providence	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.
St Steens	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
ThB2, ThB3 Tippah	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
ThC3 Tippah	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
ThD, ThD3 Tippah	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
TuD3*: Tippah	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Luverne	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Ua. Udarents						
UC*: Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Chenneby	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Ur Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Moderate: wetness, flooding.
WcB3, WcC3 Wilcox	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
WcD3 Wilcox	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ad, Ao Adaton	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey, hard to pack.
CA*: Chenneby	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
Amagon	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
CE*: Chenneby	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
Enville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Cn Chenneby	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
CwE3, CwF Chickasaw	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
DeB2, DeB3, DeC3 Deanburg	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey, thin layer.
En Enville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Fk Falkner	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Gu*: Gullied land. Hapludults.					

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Iu Iuka	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Kr Kurk	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
LeA, LeB2, LeB3, LeC, LeC3 Lexington	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
LgC*, LgC3*: Lexington	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
Providence	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
LoA Loring	Severe: wetness, percs slowly.	Slight	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
LoB2, LoB3 Loring	Severe: wetness, percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
LSD*, LSD3*: Luverne	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
LSE3*, LSF*: Luverne	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Nu Nugent	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage.
Oc Ochlockonee	Severe: wetness.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness.
PrB2, PrB3, PrC, PrC3 Providence	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
PrD, PrD3---------- Providence	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
RB*, RO*: Rosebloom----------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Bibb----------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: small stones, wetness.
SaE3---------- Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
SeD*, SeD3*: Smithdale----------	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
Lexington----------	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
SMF*: Smithdale----------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Lucy----------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: slope.
SpD*, SpD3*: Smithdale----------	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
Providence---------	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
St---------- Steens	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
ThB2, ThB3, ThC3---- Tippah	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
ThD, ThD3---------- Tippah	Severe: wetness, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TuD3*:					
Tippah	Severe: wetness, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
Luverne	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Ua.					
Udarents					
UC*:					
Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Chenneby	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
Ur	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
WcB3, WcC3	Severe: wetness, percs slowly.	Moderate: depth to rock, slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness.	Poor: too clayey, hard to pack.
WcD3	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness, slope.	Poor: too clayey, hard to pack.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Ad, Ao Adaton	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
CA*: Chenneby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Amagon	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CE*: Chenneby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Enville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Cn Chenneby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
CwE3 Chickasaw	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
CwF Chickasaw	Poor: shrink-swell, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
DeB2, DeB3, DeC3 Deanburg	Good	Probable	Improbable: too sandy.	Fair: too clayey.
En Enville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Fk Falkner	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Gu*: Gullied land. Hapludults.				
Iu Iuka	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Kr Kurk	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LeA, LeB2, LeB3, LeC, LeC3---- Lexington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
LgC*, LgC3*: Lexington----	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Providence----	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
LoA, LoB2, LoB3---- Loring	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
LSD*, LSD3*: Luverne----	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Smithdale----	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
LSE3*: Luverne----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Smithdale----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
LSF*: Luverne----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Smithdale----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Nu---- Nugent	Good	Probable----	Improbable: too sandy.	Fair: too sandy, small stones.
Oc---- Ochlockonee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
PrB2, PrB3, PrC, PrC3- Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
PrD, PrD3---- Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
RB*, RO*: Rosebloom----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
RB*, RO*:				
Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, wetness.
SaE3	Fair:	Improbable:	Improbable:	Poor:
Smithdale	slope.	excess fines.	excess fines.	slope.
SeD*, SeD3*:				
Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Lexington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
SMF*:				
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Lucy	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SpD*, SpD3*:				
Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
St	Fair:	Improbable:	Improbable:	Fair:
Steens	low strength, wetness.	excess fines.	excess fines.	too clayey, small stones.
ThB2, ThB3, ThC3	Poor:	Improbable:	Improbable:	Fair:
Tippah	shrink-swell, low strength.	excess fines.	excess fines.	too clayey, thin layer.
ThD, ThD3	Poor:	Improbable:	Improbable:	Fair:
Tippah	shrink-swell, low strength.	excess fines.	excess fines.	too clayey, thin layer, slope.
TuD3*:				
Tippah	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer, slope.
Luverne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ua.				
Udarents				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
UC*:				
Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Chenneby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Ur	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urbo				
WcB3, WcC3, WcD3	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Wilcox				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ad, Ao Adaton	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
CA*: Chenneby	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Moderate: slow refill.	Flooding	Wetness, flooding.	Wetness	Wetness.
Amagon	Slight	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
CE*: Chenneby	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Enville	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty.	Wetness, too sandy.	Wetness, droughty.
Cn Chenneby	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
CwE3 Chickasaw	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, droughty, slow intake.	Slope, erodes easily, percs slowly.	Slope, erodes easily, droughty.
CwF Chickasaw	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, droughty.	Slope, percs slowly.	Slope, droughty.
DeB2 Deanburg	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
DeB3, DeC3--------- Deanburg	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Favorable------	Favorable.
En---------- Enville	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty.	Erodes easily, wetness, too sandy.	Wetness, erodes easily, droughty.
Fk---------- Falkner	Slight---------	Severe: hard to pack.	Severe: no water.	Percs slowly---	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
Gu*: Gullied land.							
Hapludults.							
Iu---------- Iuka	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding-------	Wetness, flooding.	Erodes easily, wetness.	Erodes easily, wetness.
Kr---------- Kurk	Slight---------	Severe: thin layer.	Severe: no water.	Favorable------	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
LeA---------- Lexington	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
LeB2, LeB3, LeC, LeC3---------- Lexington	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
LgC*, LgC3*: Lexington---------	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
Providence-------	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope----------	Slope, wetness, rooting depth.	Erodes easily, wetness.	Erodes easily, rooting depth.
LoA---------- Loring	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Percs slowly---	Percs slowly, rooting depth, erodes easily.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
LoB2, LoB3--------- Loring	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, slope.	Percs slowly, rooting depth, slope.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
LSD*, LSD3*, LSE3*, LSF*:							
Luverne	Severe: slope.	Severe: piping, hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Nu Nugent	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, flooding.	Too sandy	Droughty.
Oc Ochlockonee	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Flooding	Favorable	Favorable.
PrB2, PrB3, PrC, PrC3 Providence	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Slope, wetness, rooting depth.	Erodes easily, wetness.	Erodes easily, rooting depth.
PrD, PrD3 Providence	Severe: slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Slope, wetness, rooting depth.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
RB*, RO*:							
Rosebloom	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Bibb	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
SaE3 Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
SeD*, SeD3*:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
SeD*, SeD3*:							
Lexington	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
SMF*:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Lucy	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy, slope, soil blowing.	Slope, droughty.
SpD*, SpD3*:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Providence	Severe: slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Slope, wetness, rooting depth.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
St Steens	Slight	Severe: wetness.	Severe: slow refill.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
ThB2, ThB3, ThC3 Tippah	Moderate: seepage, slope.	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily, percs slowly.
ThD, ThD3 Tippah	Severe: slope.	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.
TuD3*:							
Tippah	Severe: slope.	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.
Luverne	Severe: slope.	Severe: piping, hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Ua. Udarents							

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
UC*:							
Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Chenneby	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Ur Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
WcB3, WcC3 Wilcox	Moderate: depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Slope, wetness, slow intake.	Erodes easily, wetness.	Erodes easily, percs slowly.
WcD3 Wilcox	Severe: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Slope, wetness, slow intake.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
Ad Adaton	0-13	Silt loam	ML, CL, CL-ML	A-4	0	100	98-100	90-100	84-100	<30	NP-10
	13-60	Silt loam, silty clay loam, silty clay.	CL, CH	A-6, A-7	0	100	98-100	95-100	84-100	30-52	11-30
Ao Adaton	0-18	Silt loam	ML, CL, CL-ML	A-4	0	100	98-100	90-100	84-100	<30	NP-10
	18-60	Silt loam, silty clay loam, silty clay.	CL, CH	A-6, A-7	0	100	98-100	95-100	84-100	30-52	11-30
CA*: Chenneby	0-9	Silty clay loam	CL, ML, MH, CH	A-6, A-7, A-4	0	100	95-100	90-100	85-95	30-55	8-20
	9-60	Loam, silt loam, silty clay loam.	CL, ML, MH, CH	A-4, A-6, A-7	0	100	95-100	90-100	75-95	30-55	8-20
Amagon	0-8	Silt loam	CL-ML, CL	A-4	0	100	98-100	90-100	70-90	<30	4-10
	8-15	Silt loam	CL-ML, ML, CL	A-4	0	100	98-100	85-100	70-90	15-25	3-8
	15-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	98-100	85-100	70-95	25-40	7-20
CE*: Chenneby	0-7	Silt loam	CL, ML, CL-ML	A-4, A-6	0	100	95-100	90-100	60-90	20-35	3-15
	7-60	Loam, silt loam, silty clay loam.	CL, ML, MH, CH	A-4, A-6, A-7	0	100	95-100	90-100	75-95	30-55	8-20
Enville	0-6	Sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	100	95-100	65-85	30-60	<20	NP-7
	6-60	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	100	95-100	60-100	30-85	<30	NP-7
Cn Chenneby	0-6	Silt loam	CL, ML, CL-ML	A-4, A-6	0	100	95-100	90-100	60-90	20-35	3-15
	6-60	Loam, silt loam, silty clay loam.	CL, ML, MH, CH	A-4, A-6, A-7	0	100	95-100	90-100	75-95	30-55	8-20
CwE3 Chickasaw	0-4	Silty clay	CL	A-6, A-7	0-5	95-100	90-100	80-95	70-95	30-45	11-22
	4-35	Clay loam, silty clay, clay.	CL, CH	A-7	0-15	95-100	90-100	85-95	75-95	41-60	19-33
	35-49	Silty clay, clay	CH	A-7	0-15	95-100	90-100	90-100	80-95	51-70	25-40
	49-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
CwF Chickasaw	0-9	Loam	CL-ML, CL, ML	A-4	0-5	95-100	90-100	75-95	65-95	<30	NP-10
	9-37	Clay loam, silty clay, clay.	CL, CH	A-7	0-15	95-100	90-100	85-95	75-95	41-60	19-33
	37-47	Silty clay, clay	CH	A-7	0-15	95-100	90-100	90-100	80-95	51-70	25-40
	47-60	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
DeB2 Deanburg	0-7	Silt loam	ML, CL-ML, CL	A-4	0	100	100	90-100	65-90	<30	3-10
	7-38	Clay loam, sandy clay loam, loam.	ML, CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-95	40-80	25-48	6-25
	38-60	Sand, loamy sand, stratified sandy loam.	SM, SP-SM	A-2	0	100	100	50-75	11-30	---	NP
DeB3, DeC3 Deanburg	0-4	Clay loam	CL, SC	A-6, A-7	0	100	100	80-100	40-80	28-48	11-25
	4-30	Clay loam, sandy clay loam, loam.	ML, CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-95	40-80	25-48	6-25
	30-60	Sand, loamy sand, stratified sandy loam.	SM, SP-SM	A-2	0	100	100	50-75	11-30	---	NP
En Enville	0-10	Silt loam	ML, CL-ML	A-4	0	100	95-100	80-100	40-85	<30	NP-7
	10-60	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	100	95-100	60-100	30-85	<30	NP-7
Fk Falkner	0-8	Silt loam	CL-ML, CL	A-4	0	100	100	95-100	90-100	20-30	5-10
	8-26	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	15-30
	26-60	Silty clay, clay	CH	A-7	0	100	100	90-100	85-95	51-75	30-50
Gu*: Gullied land.											
Hapludults.											
Iu Iuka	0-5	Silt loam	ML, CL-ML	A-4	0	95-100	95-100	80-95	50-80	<30	NP-7
	5-34	Fine sandy loam, loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-4	0	95-100	85-100	65-100	36-75	<30	NP-7
	34-60	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	90-100	70-100	25-60	<30	NP-7
Kr Kurk	0-7	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	85-95	15-25	NP-10
	7-30	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	35-50	15-25
	30-60	Silt loam, silty clay loam, loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	70-95	20-35	3-15
LeA Lexington	0-8	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	8-38	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	38-60	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
LeB2 Lexington	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	5-37	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	37-60	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
LeB3---------- Lexington	0-5	Silty clay loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	5-37	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	37-46	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
	46-60	Loamy sand, sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	100	95-100	50-70	20-40	22-35	5-15
LeC---------- Lexington	0-8	Silt loam--------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	8-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	35-60	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
LeC3---------- Lexington	0-5	Silty clay loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	5-37	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	37-46	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
	46-60	Loamy sand, sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	100	95-100	50-70	20-40	22-35	5-15
LgC*: Lexington-------	0-8	Silt loam--------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	8-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	35-60	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
Providence------	0-10	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	10-25	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	25-41	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	41-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
LgC3*: Lexington-------	0-5	Silt loam--------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	5-37	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	37-46	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
	46-60	Loamy sand, sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	100	95-100	50-70	20-40	22-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
LgC3*:											
Providence	0-5	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	5-18	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	18-45	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	45-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
LoA	0-9	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	<35	NP-15
Loring	9-28	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	32-48	10-20
	28-60	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	10-22
LoB2	0-7	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	<35	NP-15
Loring	7-22	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	32-48	10-20
	22-60	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	10-22
LoB3	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	<35	NP-15
Loring	5-16	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	32-48	10-20
	16-60	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	10-22
LSD*:											
Luverne	0-9	Sandy loam	ML, SM	A-4, A-2	0-5	87-100	84-100	80-100	30-60	<20	NP
	9-29	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0-5	95-100	90-100	85-100	50-95	38-70	8-30
	29-36	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0-5	95-100	85-100	85-100	36-76	32-56	2-14
	36-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0-5	90-100	85-100	70-100	25-65	28-49	3-16
Smithdale	0-14	Sandy loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	14-51	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	51-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
LSD3*, LSE3*:											
Luverne	0-4	Clay loam	SM, ML, CL, SC	A-6, A-4	0-5	90-100	85-100	80-100	40-70	22-38	3-16
	4-18	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0-5	95-100	90-100	85-100	50-95	38-70	8-30
	18-30	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0-5	95-100	85-100	85-100	36-76	32-56	2-14
	30-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0-5	90-100	85-100	70-100	25-65	28-49	3-16

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
LSD3*, LSE3*:											
Smithdale	0-4	Loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	4-32	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	32-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
LSF*:											
Luverne	0-9	Sandy loam	ML, SM	A-4, A-2	0-5	87-100	84-100	80-100	30-60	<20	NP
	9-29	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0-5	95-100	90-100	85-100	50-95	38-70	8-30
	29-36	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0-5	95-100	85-100	85-100	36-76	32-56	2-14
	36-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0-5	90-100	85-100	70-100	25-65	28-49	3-16
Smithdale	0-7	Sandy loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	7-40	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	40-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
Nu	0-6	Loamy sand	SM, SP-SM	A-2	0	85-100	75-100	50-100	10-30	---	NP
Nugent	6-60	Stratified loamy sand to fine sandy loam.	SM, SP-SM	A-2	0	85-100	75-100	60-100	10-30	<25	NP-3
Oc	0-8	Silt loam	ML, CL-ML	A-4	0	100	95-100	95-100	50-90	<30	NP-7
Ochlockonee	8-43	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	0	100	95-100	95-100	36-75	<32	NP-9
	43-60	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9
PrB2	0-7	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
Providence	7-20	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	20-37	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	37-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
PrB3	0-5	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	85-100	30-45	11-20
Providence	5-18	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	18-29	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	29-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
PrC	0-10	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
Providence	10-25	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	25-41	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	41-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
PrC3	0-5	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	85-100	30-45	11-20
Providence	5-18	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	18-29	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	29-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
PrD	0-10	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
Providence	10-25	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	25-41	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	41-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
PrD3	0-5	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	85-100	30-45	11-20
Providence	5-18	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	18-29	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	29-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
RB*, RO*:											
Rosebloom	0-7	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	90-100	30-45	15-25
	7-60	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	100	90-100	85-100	28-40	9-20
Bibb	0-4	Silt loam	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
	4-60	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
SaE3	0-4	Loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
Smithdale	4-32	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	32-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
SeD*:											
Smithdale	0-14	Sandy loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	14-51	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	51-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
Lexington	0-8	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	8-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	35-60	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
SeD3*:											
Smithdale	0-4	Loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	4-32	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	32-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
SeD3*:											
Lexington	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-100	25-42	5-16
	5-37	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-100	27-45	11-25
	37-46	Sandy loam, loam, silt loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
	46-60	Loamy sand, sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	100	95-100	50-70	20-40	22-35	5-15
SMF*:											
Smithdale	0-14	Sandy loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	14-51	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	51-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
Lucy	0-33	Loamy sand	SM, SP-SM	A-2, A-4	0	98-100	95-100	50-90	10-40	---	NP
	33-44	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	10-30	NP-15
	44-60	Sandy clay loam, clay loam, sandy clay.	SC, SC-SM, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
SpD*:											
Smithdale	0-14	Sandy loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	14-51	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	51-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
Providence	0-10	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	10-25	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	25-41	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	41-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
SpD3*:											
Smithdale	0-4	Loam	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	4-32	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	32-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
Providence	0-5	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	5-18	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	18-29	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	29-60	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
St	0-7	Loam	ML, CL-ML, CL	A-4	0	100	100	90-100	70-90	<30	3-10
Steens	7-60	Clay loam, loam, sandy clay loam.	CL, SC	A-4, A-6	0	100	90-100	80-95	40-80	22-40	8-20
ThB2	0-7	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
Tippah	7-28	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	28-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
ThB3, ThC3	0-5	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
Tippah	5-28	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	28-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
ThD	0-7	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
Tippah	7-28	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	28-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
ThD3	0-5	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
Tippah	5-28	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	28-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
TuD3*:											
Tippah	0-5	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
	5-28	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	28-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
Luverne	0-4	Clay loam	SM, ML, CL, SC	A-6, A-4	0-5	90-100	85-100	80-100	40-70	22-38	3-16
	4-18	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0-5	95-100	90-100	85-100	50-95	38-70	8-30
	18-30	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0-5	95-100	85-100	85-100	36-76	32-56	2-14
	30-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0-5	90-100	85-100	70-100	25-65	28-49	3-16
Ua.											
Udarents											
UC*:											
Urbo	0-5	Silty clay loam	CL	A-6	0	100	100	95-100	95-100	30-40	15-25
	5-60	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	0	100	100	95-100	80-98	44-62	20-36

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
UC*:											
Chenneby	0-12	Silt loam	CL, ML, CL-ML	A-4, A-6	0	100	95-100	90-100	60-90	20-35	3-15
	12-60	Loam, silt loam, silty clay loam.	CL, ML, MH, CH	A-4, A-6, A-7	0	100	95-100	90-100	75-95	30-55	8-20
Ur	0-5	Silty clay loam	CL	A-6	0	100	100	95-100	95-100	30-40	15-25
Urbo	5-60	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	0	100	100	95-100	80-98	44-62	20-36
WcB3, WcC3, WcD3-Wilcox	0-5	Silty clay	CH	A-7	0	100	100	95-100	80-98	50-70	25-40
	5-41	Clay, silty clay, silty clay loam.	CH, MH	A-7	0	100	100	95-100	80-98	50-78	22-46
	41-55	Clay	CH	A-7	0	100	100	90-100	75-98	60-80	39-55
	55-60	Weathered bedrock	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
Ad	0-13	10-16	1.50-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
Adaton	13-60	20-42	1.40-1.45	0.06-0.2	0.18-0.22	4.5-5.5	Moderate	0.32		
Ao	0-18	10-16	1.50-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
Adaton	18-60	20-42	1.40-1.45	0.06-0.2	0.18-0.22	4.5-5.5	Moderate	0.32		
CA*:										
Chenneby	0-9	27-35	1.30-1.60	0.6-2.0	0.18-0.22	4.5-6.0	Low	0.32	5	.5-3
	9-60	12-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low	0.32		
Amagon	0-8	12-25	1.25-1.50	0.6-2.0	0.16-0.24	4.5-6.5	Low	0.43	5	1-2
	8-15	10-20	1.25-1.50	0.6-2.0	0.16-0.24	4.5-6.5	Low	0.43		
	15-60	18-35	1.25-1.50	0.06-0.2	0.16-0.24	4.5-6.5	Moderate	0.37		
CE*:										
Chenneby	0-7	12-27	1.30-1.60	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.37	5	.5-3
	7-60	12-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low	0.32		
Enville	0-6	5-18	1.30-1.45	2.0-6.0	0.06-0.15	5.1-6.5	Low	0.24	5	.5-2
	6-60	10-18	1.30-1.55	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
Cn	0-6	12-27	1.30-1.60	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.37	5	.5-3
Chenneby	6-60	12-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low	0.32		
CwE3	0-4	30-45	1.50-1.60	0.2-0.6	0.12-0.16	5.1-6.0	Moderate	0.37	4-3	0-.5
Chickasaw	4-35	35-55	1.40-1.60	<0.06	0.10-0.15	4.5-5.5	High	0.32		
	35-49	40-70	1.40-1.65	<0.06	0.08-0.14	4.5-5.5	High	0.32		
	49-60	---	---	0.00-0.2	---	---		----		
CwF	0-9	8-20	1.50-1.60	0.6-2.0	0.14-0.18	5.1-6.0	Low	0.32	4-3	.5-1
Chickasaw	9-37	35-55	1.40-1.60	<0.06	0.10-0.15	4.5-5.5	High	0.32		
	37-47	40-70	1.40-1.65	<0.06	0.08-0.14	4.5-5.5	High	0.32		
	47-60	---	---	0.00-0.2	---	---		----		
DeB2	0-7	10-25	1.40-1.60	0.6-2.0	0.16-0.22	5.1-6.0	Low	0.37	5	<.5
Deanburg	7-38	15-35	1.40-1.60	0.6-2.0	0.10-0.20	5.1-6.0	Low	0.24		
	38-60	5-15	1.30-1.50	2.0-20	0.02-0.10	5.1-6.0	Low	0.20		
DeB3, DeC3	0-4	20-35	1.40-1.60	0.6-2.0	0.15-0.20	5.1-6.0	Low	0.32	5	<.5
Deanburg	4-30	15-35	1.40-1.60	0.6-2.0	0.10-0.20	5.1-6.0	Low	0.24		
	30-60	5-15	1.30-1.50	2.0-20	0.02-0.10	5.1-6.0	Low	0.20		
En	0-10	6-18	1.30-1.45	0.6-2.0	0.15-0.20	5.1-6.5	Low	0.37	5	.5-2
Enville	10-60	10-18	1.30-1.55	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
Fk	0-8	5-18	1.40-1.55	0.2-0.6	0.21-0.24	4.5-6.0	Low	0.49	4	.5-3
Falkner	8-26	20-35	1.40-1.60	0.2-0.6	0.19-0.22	4.5-6.0	Moderate	0.43		
	26-60	38-60	1.40-1.50	0.06-0.2	0.16-0.18	4.5-6.5	High	0.24		
Gu*:										
Gullied land.										
Hapludults.										

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
Iu	0-5	6-15	---	0.6-2.0	0.15-0.20	5.1-6.0	Low	0.37	5	.5-2
Iuka	5-34	8-18	---	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	34-60	5-15	---	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.20		
Kr	0-7	12-22	1.30-1.50	0.6-2.0	0.20-0.24	5.1-6.5	Low	0.49	5	.5-3
Kurk	7-30	25-35	1.40-1.60	0.2-0.6	0.16-0.20	4.5-6.0	Low	0.43		
	30-60	15-30	1.50-1.70	0.2-0.6	0.16-0.20	4.5-6.0	Low	0.43		
LeA	0-8	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
Lexington	8-38	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	38-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
LeB2	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
Lexington	5-37	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	37-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
LeB3	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
Lexington	5-37	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	37-46	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
	46-60	9-30	1.20-1.55	2.0-6.0	0.05-0.10	4.5-6.0	Low	0.24		
LeC	0-8	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
Lexington	8-35	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	35-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
LeC3	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
Lexington	5-37	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	37-46	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
	46-60	9-30	1.20-1.55	2.0-6.0	0.05-0.10	4.5-6.0	Low	0.24		
LgC*:										
Lexington	0-8	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
	8-35	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	35-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
Providence	0-10	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
	10-25	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	25-41	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	41-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
LgC3*:										
Lexington	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
	5-37	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	37-46	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
	46-60	9-30	1.20-1.55	2.0-6.0	0.05-0.10	4.5-6.0	Low	0.24		
Providence	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
	5-18	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	18-45	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	45-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
LoA	0-9	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	4-3	.5-2
Loring	9-28	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	28-60	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
LoB2	0-7	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	4-3	.5-2
Loring	7-22	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	22-60	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
LoB3	0-5	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	4-3	.5-2
Loring	5-16	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	16-60	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
LSD*:										
Luverne	0-9	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low	0.24	5	.5-1
	9-29	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	0.28		
	29-36	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low	0.28		
	36-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low	0.28		
Smithdale	0-14	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	14-51	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	51-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
LSD3*, LSE3*:										
Luverne	0-4	20-35	1.35-1.65	0.2-0.6	0.12-0.16	3.6-5.5	Low	0.28	5	<.5
	4-18	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	0.28		
	18-30	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low	0.28		
	30-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low	0.28		
Smithdale	0-4	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	4-32	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	32-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
LSF*:										
Luverne	0-9	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low	0.24	5	.5-1
	9-29	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	0.28		
	29-36	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low	0.28		
	36-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low	0.28		
Smithdale	0-7	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	7-40	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	40-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Nu	0-6	2-8	1.20-1.40	6.0-20	0.07-0.10	4.5-6.5	Low	0.10	5	.5-2
Nugent	6-60	2-10	1.20-1.40	2.0-6.0	0.07-0.13	4.5-6.5	Low	0.17		
Oc	0-8	7-22	1.40-1.60	2.0-6.0	0.10-0.20	4.5-6.5	Low	0.24	5	.5-2
Ochlockonee	8-43	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.20		
	43-60	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low	0.17		
PrB2	0-7	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
Providence	7-20	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	20-37	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	37-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
PrB3	0-5	27-32	1.40-1.60	0.6-2.0	0.18-0.22	4.5-6.0	Low	0.43	4-3	.5-1
Providence	5-18	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	18-29	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	29-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
PrC	0-10	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
Providence	10-25	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	25-41	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	41-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
PrC3	0-5	27-32	1.40-1.60	0.6-2.0	0.18-0.22	4.5-6.0	Low	0.43	4-3	.5-1
Providence	5-18	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	18-29	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	29-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
PrD	0-10	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
Providence	10-25	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	25-41	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	41-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
PrD3	0-5	27-32	1.40-1.60	0.6-2.0	0.18-0.22	4.5-6.0	Low	0.43	4-3	.5-1
Providence	5-18	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	18-29	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	29-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
RB*, RO*:										
Rosebloom	0-7	28-35	1.40-1.50	0.6-2.0	0.18-0.22	4.5-5.5	Moderate	0.37	5	1-3
	7-60	20-35	1.40-1.55	0.6-2.0	0.2-0.22	4.5-5.5	Low	0.37		
Bibb	0-4	2-18	1.40-1.65	0.6-2.0	0.15-0.20	3.6-5.5	Low	0.28	5	1-3
	4-60	2-18	1.45-1.75	0.6-2.0	0.10-0.20	3.6-5.5	Low	0.37		
SaE3	0-4	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
Smithdale	4-32	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	32-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
SeD*:										
Smithdale	0-14	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	14-51	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	51-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Lexington	0-8	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
	8-35	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	35-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
SeD3*:										
Smithdale	0-4	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	4-32	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	32-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Lexington	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	4	0-2
	5-37	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	37-46	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
	46-60	9-30	1.20-1.55	2.0-6.0	0.05-0.10	4.5-6.0	Low	0.24		
SMF*:										
Smithdale	0-14	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	14-51	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	51-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Lucy	0-33	1-12	1.30-1.70	6.0-20	0.08-0.12	5.1-6.0	Low	0.10	5	.5-1
	33-44	10-30	1.40-1.60	2.0-6.0	0.10-0.12	4.5-5.5	Low	0.24		
	44-60	20-45	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	Low	0.28		
SpD*:										
Smithdale	0-14	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	14-51	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	51-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Providence	0-10	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
	10-25	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	25-41	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	41-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
SpD3*:										
Smithdale	0-4	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	4-32	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	32-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Providence	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	4-3	.5-3
	5-18	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	18-29	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
	29-60	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low	0.32		
St	0-7	10-16	1.50-1.55	0.6-2.0	0.20-0.22	4.5-6.5	Low	0.37	4	2-3
Steens	7-60	20-35	1.60-1.70	0.2-0.6	0.10-0.18	4.5-5.5	Low	0.20		
ThB2	0-7	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	5	.5-2
Tippah	7-28	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate	0.43		
	28-60	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High	0.24		
ThB3, ThC3	0-5	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	5	.5-2
Tippah	5-28	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate	0.43		
	28-60	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High	0.24		
ThD	0-7	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	5	.5-2
Tippah	7-28	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate	0.43		
	28-60	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High	0.24		
ThD3	0-5	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	5	.5-2
Tippah	5-28	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate	0.43		
	28-60	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High	0.24		
TuD3*:										
Tippah	0-5	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	5	.5-2
	5-28	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate	0.43		
	28-60	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High	0.24		
Luverne	0-4	20-35	1.35-1.65	0.2-0.6	0.12-0.16	3.6-5.5	Low	0.28	5	<.5
	4-18	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	0.28		
	18-30	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low	0.28		
	30-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low	0.28		
Ua.										
Udarents										
UC*:										
Urbo	0-5	12-35	1.40-1.50	0.06-0.2	0.19-0.21	4.5-5.5	Low	0.49	5	1-3
	5-60	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate	0.28		
Chenneby	0-12	12-27	1.30-1.60	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.37	5	.5-3
	12-60	12-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low	0.32		
Ur	0-5	12-35	1.40-1.50	0.06-0.2	0.19-0.21	4.5-5.5	Low	0.49	5	1-3
Urbo	5-60	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate	0.28		
WcB3, WcC3, WcD3-	0-5	40-55	1.40-1.45	0.06-0.2	0.18-0.20	4.5-5.5	High	0.37	4-3	.5-2
Wilcox	5-41	40-60	1.40-1.50	<0.06	0.18-0.20	3.6-5.5	High	0.32		
	41-55	40-70	1.40-1.55	<0.06	0.15-0.18	3.6-5.5	High	0.28		
	55-60	---	---	<0.06	---	---				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
Ad, Ao Adaton	D	None	---	---	0-0.5	Apparent	Jan-Apr	>60	---	High	High.
CA*: Chenneby	C	Frequent	Very brief to long.	Dec-Apr	1.0-1.5	Apparent	Jan-Mar	>60	---	High	Moderate.
Amagon	D	Frequent	Very brief to long.	Dec-Apr	0.5-1.0	Perched	Dec-Apr	>60	---	High	High.
CE*: Chenneby	C	Frequent	Very brief to long.	Dec-Apr	1.0-1.5	Apparent	Jan-Mar	>60	---	High	Moderate.
Enville	C	Frequent	Brief	Nov-Apr	1.0-1.5	Apparent	Dec-Apr	>60	---	Moderate	High.
Cn Chenneby	C	Occasional	Very brief to long.	Dec-Apr	1.0-1.5	Apparent	Jan-Mar	>60	---	High	Moderate.
CwE3, CwF Chickasaw	C	None	---	---	>6.0	---	---	40-60	Soft	High	High.
DeB2, DeB3, DeC3 Deanburg	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
En Enville	C	Occasional	Brief	Nov-Apr	1.0-1.5	Apparent	Dec-Apr	>60	---	Moderate	High.
Fk Falkner	C	None	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	High	Moderate.
Gu*: Gullied land.											
Hapludults.											
Iu Iuka	C	Occasional	Very brief to brief.	Dec-Apr	1.5-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
Kr Kurk	C	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	Moderate	Moderate.
LeA, LeB2, LeB3, LeC, LeC3 Lexington	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
LgC*, LgC3*: Lexington	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Providence	C	None	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	Moderate	Moderate.
LoA, LoB2, LoB3 Loring	C	None	---	---	1.5-2.5	Perched	Dec-Mar	>60	---	Moderate	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
LSD*, LSD3*, LSE3*, LSF*:											
Luverne	C	None	---	---	>6.0	---	---	>60	---	High	High.
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Nu Nugent	A	Occasional	Brief to long.	Dec-Apr	3.5-6.0	Apparent	Jan-Apr	>60	---	Low	Moderate.
Oc Ochlockonee	B	Rare	---	---	3.0-5.0	Apparent	Dec-Apr	>60	---	Low	High.
PrB2, PrB3, PrC, PrC3, PrD, PrD3-- Providence	C	None	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	Moderate	Moderate.
RB*:											
Rosebloom	D	Frequent	Brief to very long.	Jan-Mar	0-1.0	Apparent	Jan-Mar	>60	---	High	Moderate.
Bibb	D	Frequent	Brief to long.	Dec-May	0-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
RO*:											
Rosebloom	D	Occasional	Brief to very long.	Jan-Mar	0-1.0	Apparent	Jan-Mar	>60	---	High	Moderate.
Bibb	D	Occasional	Brief to long.	Dec-May	0-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
SaE3 Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
SeD*, SeD3*:											
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Lexington	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
SMF*:											
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Lucy	A	None	---	---	>6.0	---	---	>60	---	Low	High.
SpD*, SpD3*:											
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Providence	C	None	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	Moderate	Moderate.
St Steens	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	>60	---	Low	High.
ThB2, ThB3, ThC3, ThD, ThD3 Tippah	C	None	---	---	2.0-2.5	Perched	Dec-Apr	>60	---	High	High.
TuD3*:											
Tippah	C	None	---	---	2.0-2.5	Perched	Dec-Apr	>60	---	High	High.
Luverne	C	None	---	---	>6.0	---	---	>60	---	High	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
Ua. Udarents											
UC*:											
Urbo	D	Frequent	Brief to long.	Jan-Mar	1.0-1.5	Apparent	Jan-Mar	>60	---	High	High.
Chenneby	C	Frequent	Very brief to long.	Dec-Apr	1.0-1.5	Apparent	Jan-Mar	>60	---	High	Moderate.
Ur	D	Occasional	Brief to long.	Jan-Mar	1.0-1.5	Apparent	Jan-Mar	>60	---	High	High.
Urbo											
WcB3, WcC3, WcD3--Wilcox	D	None	---	---	1.0-1.5	Perched	Jan-Apr	40-60	Soft	High	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Adaton	Fine-silty, mixed, thermic Typic Ochraqualfs
Amagon	Fine-silty, mixed, thermic Typic Ochraqualfs
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Chenneby	Fine-silty, mixed, thermic Fluvaquentic Dystrochrepts
Chickasaw	Fine, montmorillonitic, thermic Vertic Hapludalfs
Deanburg	Fine-loamy, mixed, thermic Ultic Hapludalfs
Enville	Coarse-loamy, siliceous, acid, thermic Aeric Fluvaquents
Falkner	Fine-silty, siliceous, thermic Aquic Paleudalfs
Iuka	Coarse-loamy, siliceous, acid, thermic Aquic Udifluvents
Kurk	Fine-silty, mixed, thermic Aeric Epiaqualfs
Lexington	Fine-silty, mixed, thermic Ultic Hapludalfs
Loring	Fine-silty, mixed, thermic Oxyaquic Fragiudalfs
Lucy	Loamy, siliceous, thermic Arenic Kandiudults
Luverne	Clayey, mixed, thermic Typic Hapludults
Nugent	Sandy, siliceous, thermic Typic Udifluvents
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Providence	Fine-silty, mixed, thermic Typic Fragiudalfs
Rosebloom	Fine-silty, mixed, acid, thermic Typic Fluvaquents
Smithdale	Fine-loamy, siliceous, thermic Typic Hapludults
Steens	Fine-loamy, siliceous, thermic Aeric Ochraqualfs
Tippah	Fine-silty, mixed, thermic Aquic Paleudalfs
Urbo	Fine, mixed, acid, thermic Aeric Haplaquepts
Wilcox	Fine, montmorillonitic, thermic Vertic Hapludalfs

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