United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the U.S. Forest Service and the Mississippi Agricultural and Forestry Experiment Station

Soil Survey of Smith County, Mississippi

How To Use This Soil Survey

This document provides text and tables that describe the soils in the survey area. A symbol is assigned to each soil. The symbol relates the text and tables to soil maps.

The soil maps are available online from the **Web Soil Survey** (http://websoilsurvey.nrcs.usda.gov/). Select the area for which you would like a soil map using the **Area of Interest** tab. After defining your area of interest, click on the **Soil Map** tab to view or print a soil map.

Note the map unit symbols on the soil map. Turn to the **Contents** in this document. The **Contents** lists the map units by symbol and name and shows the page where each map unit is described. It also shows which tables have data on specific land uses for each detailed soil map unit and lists other sections of this publication that may address your specific needs.

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

Major fieldwork for this soil survey was completed in 1994. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation Service, the U.S. Forest Service, and the Mississippi Agricultural and Forestry Experiment Station. The survey is part of the technical assistance furnished to the Smith County Soil and Water Conservation District.

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

Cover: Watermelons growing in an area of Ruston fine sandy loam, 2 to 5 percent slopes. This well drained, loamy soil is classified as prime farmland and is well suited to a variety of crops.

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

Contents

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, ranchers, 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.

Homer L. Wilkes
State Conservationist
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Soil Survey of
Smith County, Mississippi

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
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SMITH COUNTY is in the southeastern part of Mississippi (fig. 1). Raleigh is the county seat. In 1990, Smith County had a population of 14,798. The total area of the county is 406,500 acres, or about 635 square miles. Of this area, 72,623 acres is in the Bienville National Forest.

Smith County is bordered on the north by Scott County, on the east by Jasper County, on the south by Jones and Covington Counties, and on the west by Simpson and Rankin Counties.

This soil survey updates the survey of Smith County published in 1920 (Tharp and DeYoung, 1920). It provides additional information and is on larger maps on an aerial photography base.

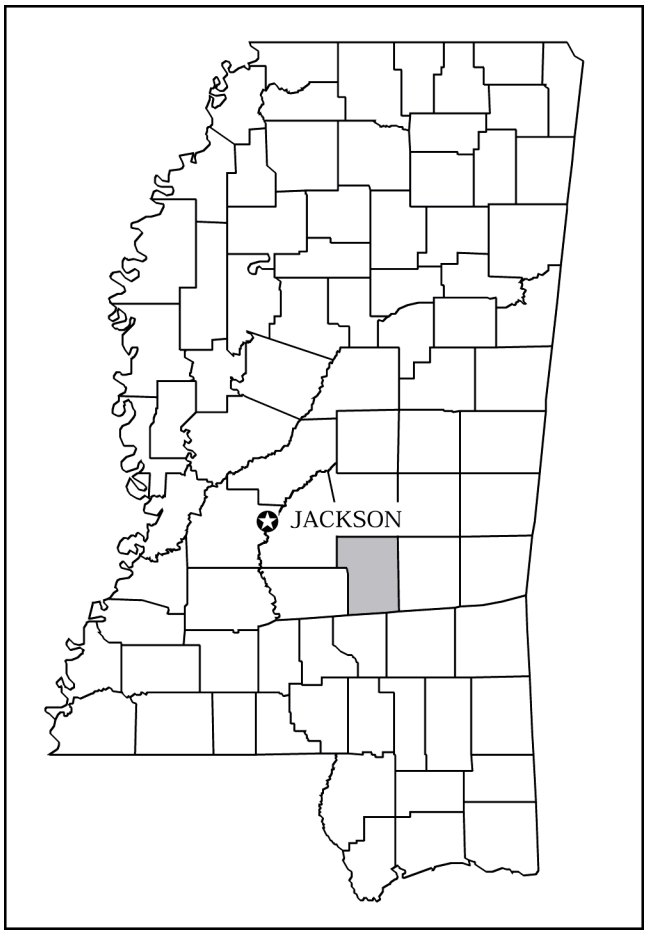

Figure 1.—Location of Smith County in Mississippi.

General Nature of the County

In this section, general information about Smith County is given. The information includes a description of climate, history and development, relief and drainage, and natural resources.

Climate

Smith County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. Cold waves are rare and moderate in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation,

mainly afternoon thunderstorms, is generally adequate for all crops.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short in duration and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

Table 1 gives data on temperature and precipitation for the survey area as recorded at D'Lo, Mississippi, 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 46 degrees F and the average daily minimum temperature is 33 degrees. The lowest temperature on record, which occurred on January 21, 1985, is 0 degrees. In summer, the average temperature is 79 degrees and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on June 14, 1963, is 105 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 59 inches. Of this, 31 inches, or 53 percent, usually falls in April through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through October is less than 14 inches. The heaviest 1-day rainfall during the period of record was 8.8 inches on January 6, 1950. Thunderstorms occur on about 67 days each year, and most occur in July.

The average seasonal snowfall is about 0.2 inch. The greatest snow depth at any one time during the period of record was 6 inches. On the average, no days of the year have at least 1 inch of snow on the ground.

The average relative humidity in midafternoon is about 58 percent. Humidity is higher at night, and the average at dawn is about 91 percent. The sun shines 67 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 9 miles per hour, in March.

History and Development

The area that is now Smith County was settled in the early 1800's. It was ceded to the State of Mississippi on September 27, 1830, by the Choctaw Indians in the Treaty of Dancing Rabbit Creek. Smith County was established as a county on December 23, 1833. The county was named in honor of Major David Smith, who was a hero of the Revolutionary War (Southern Historical News, 1986).

The first county seat was at Fairfield, which was located on Three Chop Way Road. This road traversed several states and was the main east-west road through the county. The county seat was later moved to Raleigh.

The population of the county was about 14,000 in 1870 and increased to 19,403 by 1940. By 1990, the population had decreased to about 14,798 (Mississippi Power Company, 1983).

Some of the early settlements in Smith County included Polkville, Trenton, Sylvarena, Burns, Ted, Bunker Hill, and Old Taylorsville.

Relief and Drainage

Smith County is generally hilly and highly dissected, except for in the smoother, less sloping areas that parallel large streams. The county is split by two prominent ridges that extend generally north to south through the county. One of the ridges is in the western part of the county and is known locally as "Heater Ridge." It forms the divide between the Pearl River drainage basin and the Pascagoula River drainage basin. The other prominent ridge is in the central part of the county and extends through Raleigh. This ridge forms the divide between the Oakohay Creek drainage and the Leaf River drainage. It is generally narrow but becomes broader below Raleigh. The highest elevation in the county is 605 feet and is on the summit of Heater Ridge. The lowest elevation is about 230 feet and is on the flood plain along the Leaf River in an area below Taylorsville (Luper, Augurarohita, and Baughman, 1972).

The northwestern part of Smith County is in the Pearl River drainage basin. The remainder of the county is in the Pascagoula River basin. The main tributaries to the Pearl River basin, which drains about 13 percent of the county, are the Strong River, Raspberry Creek, Davis Creek, Caney Creek, and White Oak Creek. The main tributaries to the Pascagoula River basin, which drains about 87 percent of the county, are the Leaf River, Oakohay Creek, Ichusa Creek, West Tallahala Creek, Hatchapaloo Creek, Fisher Creek, Shongelo Creek, Tallabogue Creek, Sullivans Hollow Creek, and Big Creek.

Natural Resources

About 77 percent of Smith County is woodland. The dominant forest types in the uplands are loblolly-shortleaf pine and oak-pine. The dominant forest types

in the bottom lands are oak-hickory and oak-gum-cypress. The wood from these forests is used mostly for paper, lumber, fiberboard, and plywood products.

About 3 percent of the county is used for cultivated crops. About 19 percent is used for pasture and hay. The major cash crops are specialty crops, such as watermelon, tomato, okra, and cucumber. Other crops include cotton, corn, soybeans, grain sorghum, and peanuts. The most commonly seeded grasses for pasture and hayland are coastal bermudagrass and bahiagrass. Tall fescue, rye, and ryegrass provide cool-season grazing. About 250 poultry farms are scattered throughout the county. They produce about 96 million broilers each year. Catfish farming and the production of fruits, such as blueberries, muscadines, and peaches, have been increasing during the past several years. These crops have the potential to make a substantial addition to the economy of the county.

Mineral resources in Smith County include sand, gravel, clay, limestone, oil, and gas. Small pits that produce sand and gravel are scattered throughout the county, mostly along major streams and in areas of the Citronelle Formation. Four oil and gas fields are active in the county. Limestone is quarried in the eastern part of the county and is processed for agricultural lime. Clay from the Buckatunna Clay member of the Vicksburg Group is mined for use as an additive in poultry and livestock feeds. Quarries south of Polkville and south of Sylvarena produce bentonite clay, mostly from the Glendon Limestone member of the Vicksburg Group (Luper, Augurarohita, and Baughman, 1972).

How This Survey Was Made

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

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted 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.

Confidence Limits of Soil Survey Information

The statements about soil behavior in this survey can be thought of in terms of probability. They are predictions of soil behavior. The behavior of a soil depends not only on its own properties, but on responses to such variables as climate and biological activity. Soil conditions are predictable for the long term, but they are unpredictable from year to year. For example, while a soil scientist can state that a given soil has a high water table in most years, he cannot say with certainty that the water table will be present next year.

Confidence limits are statistical expressions of the probability that the composition of a map unit or a property of the soil will vary within prescribed limits. Confidence limits can be assigned numerical values based on a random sample. In the absence of specific data to determine confidence limits, the natural variability of soils and the way soil surveys are made must be considered. The composition of map units and other information is derived largely from extrapolations made from a small sample. The map units contain contrasting inclusions. Also, information about the soils does not extend below a depth of 6 to 7 feet. The information presented in the soil survey is not meant to be used as a substitute for onsite investigations. Soil survey information can be used to select from among alternative practices or general designs that may be needed to minimize the possibility of soil-related failures. Onsite investigation is needed to interpret specific points on the landscape.

Specific confidence limits for the composition of soil associations and soil complexes in Smith County were determined by taking samples from random transects made across mapped areas. Soil scientists made enough transects and took enough samples to characterize each map unit at an 80 percent confidence level. For example, in 80 percent of the areas mapped as Savannah-Boswell complex, 2 to 8 percent slopes, the percentage of each soil is within the range given in the map unit description. In as many as 20 percent of the areas of this map unit, the percentage of each soil may be either higher or lower than the given range.

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 and some minor soils. It is named for the major soils. 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.

Each map unit is rated for cultivated crops, pasture and hay, woodland, and urban uses. The ratings for cultivated crops refer to those grown extensively in the survey area. The ratings for pasture and hay refer to improved, locally grown grasses and legumes. The ratings for woodland refer to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments.

The boundaries of the general soil map units in Smith County were matched, where possible, with those of the previously completed surveys of Jasper, Jones, Covington, Rankin, and Simpson Counties. In a few areas, however, the lines do not join and the names of the map units differ. These differences result mainly because of changes in soil series concepts, differences in map unit design, and changes in soil patterns near survey area boundaries.

1. Trebloc-Stough-Kirkville

Nearly level, poorly drained, somewhat poorly drained, and moderately well drained, loamy soils on stream terraces and flood plains

Setting

Location in the survey area: Parallel to major streams in the western and southern parts of the county
Landscape: Coastal Plain
Landform: Low terraces; flood plains
Landform position: Trebloc—flats and depressional areas on low stream terraces; Stough—slightly convex slopes on low stream terraces; Kirkville—high parts of natural levees on flood plains
Slope: 0 to 2 percent

Composition

Percent of the survey area: 11
Trebloc soils: 28 percent
Stough soils: 26 percent
Kirkville soils: 15 percent
Minor soils: 31 percent, including Bibb, Jena, Quitman, and Urbo soils

Soil Characteristics

Trebloc
Surface layer: Dark grayish brown silt loam
Subsurface layer: Upper part—grayish brown silt loam; lower part—light brownish gray silt loam
Subsoil: Upper part—grayish brown silty clay loam; next part—light brownish gray silty clay loam that has brownish mottles; lower part—gray clay loam that has brownish mottles
Substratum: Dark gray sandy clay loam that has grayish mottles
Depth class: Very deep
Drainage class: Poorly drained
Seasonal high water table: Apparent, at a depth of 1/2 to 1 foot from December through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Stough
Surface layer: Very dark grayish brown fine sandy loam
Subsurface layer: Light brownish gray fine sandy loam
Subsoil: Upper part—light yellowish brown fine sandy loam that has grayish and brownish mottles; next part—yellowish brown sandy loam that has grayish and brownish mottles; lower part—light gray and light yellowish brown sandy

clay loam and gray clay loam having brownish mottles
Depth class: Very deep
Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 to 1 1/2 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Kirkville
Surface layer: Dark brown fine sandy loam
Subsoil: Upper part—yellowish brown fine sandy loam; next part—yellowish brown loam that has grayish mottles; lower part—light grayish brown and light brownish gray sandy clay loam that has brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 1/2 feet from December through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Minor soils
- The poorly drained Bibb soils in concave positions on low parts of flood plains
- The well drained Jena soils on the high parts of natural levees adjacent to stream channels
- The somewhat poorly drained Quitman soils on low stream terraces
- The somewhat poorly drained, clayey Urbo soils in flat to slightly concave positions in backswamps

Use and Management

Major uses: Mostly woodland; a small acreage of cultivated crops, pasture, and hay

Cropland
Management concerns: Flooding and wetness

Pasture and hayland
Management concerns: Flooding and wetness

Woodland
Management concerns: Trebloc and Kirkville—restricted use of equipment, seedling survival, and competition from undesirable plants; Stough—restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Trebloc—flooding, wetness, and restricted permeability; Stough and Kirkville—flooding and wetness

2. Urbo-Kirkville-Leeper

Nearly level, somewhat poorly drained clayey soils and moderately well drained, loamy soils; on flood plains

Setting

Location in the survey area: Parallel to major streams in the eastern part of the county
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Urbo—slightly concave to flat slopes in backswamps; Kirkville—high parts of natural levees; Leeper—slightly concave to flat slopes in backswamps
Slope: 0 to 2 percent

Composition

Percent of the survey area: 5
Urbo soils: 40 percent
Kirkville soils: 20 percent
Leeper soils: 10 percent
Minor soils: 30 percent, including Bibb, Quitman, Stough, Trebloc, and Una soils

Soil Characteristics

Urbo
Surface layer: Dark grayish brown clay loam
Subsoil: Upper part—light olive brown silty clay that has grayish mottles; next part—gray silty clay loam that has brownish mottles; lower part—gray clay and clay loam having brownish mottles
Depth class: Very deep
Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Slope: 0 to 2 percent
Parent material: Clayey fluvial sediments

Kirkville
Surface layer: Dark brown fine sandy loam
Subsoil: Upper part—yellowish brown fine sandy loam; next part—yellowish brown loam that has grayish mottles; lower part—light brownish gray loam and sandy clay loam having brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 1/2 feet from December through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Leeper
Surface layer: Very dark grayish brown clay loam
Subsoil: Upper part—grayish brown clay loam that has

brownish mottles; lower part—gray silty clay that has reddish and brownish mottles
Substratum: Upper part—gray clay that has grayish and brownish mottles; lower part—light gray clay that has brownish mottles
Depth class: Very deep
Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Slope: 0 to 1 percent
Parent material: Clayey fluvial sediments

Minor soils

- The poorly drained Bibb soils in concave positions at intermediate elevations on the flood plain
- The somewhat poorly drained, loamy Quitman and Stough soils on low stream terraces
- The poorly drained, loamy Trebloc soils in depressions on low stream terraces
- The poorly drained, clayey Una soils in low, concave positions in backswamps

Use and Management

Major uses: Mostly woodland and wildlife habitat; a small acreage of cultivated crops, pasture, and hay

Cropland
Management concerns: Flooding and wetness

Pasture and hayland
Management concerns: Flooding and wetness

Woodland
Management concerns: Restricted use of equipment, seedling survival, and competition from undesirable plants

Urban development
Management concerns: Urbo—flooding, wetness, restricted permeability, and low strength; Kirkville—flooding and wetness; Leeper—flooding, wetness, restricted permeability, low strength, and shrink-swell potential

3. Jena-Quitman-Stough

Nearly level, well drained and somewhat poorly drained, loamy soils on flood plains and stream terraces

Setting

Location in the survey area: Parallel to major streams in the southern part of the county
Landscape: Coastal Plain
Landform: Jena—flood plains; Quitman and Stough—low stream terraces
Landform position: Jena—high parts of natural levees; Quitman and Stough—slightly concave to flat slopes
Slope: 0 to 2 percent

Composition

Percent of the survey area: 3
Jena soils: 40 percent
Quitman soils: 33 percent
Stough soils: 20 percent
Minor soils: 7 percent, including Alaga, Annemaine, Bibb, Cahaba, and Trebloc soils

Soil Characteristics

Jena
Surface layer: Dark brown fine sandy loam
Subsoil: Upper part—dark yellowish brown loam; lower part—yellowish brown sandy loam
Substratum: Upper part—yellowish brown sandy loam that has grayish mottles; lower part—mottled brownish and grayish sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Quitman
Surface layer: Dark gray fine sandy loam
Subsurface layer: Light brownish gray fine sandy loam
Subsoil: Upper part—light yellowish brown loam that has grayish and brownish mottles; next part—light brownish gray loam that has brownish mottles; lower part—gray loam that has brownish mottles
Depth class: Very deep
Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of $1^1/_2$ to 2 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Stough
Surface layer: Very dark grayish brown fine sandy loam
Subsurface layer: Light brownish gray fine sandy loam
Subsoil: Upper part—light yellowish brown fine sandy loam that has grayish and brownish mottles; next part—yellowish brown sandy loam that has grayish mottles; lower part—light brownish gray and light gray loam and sandy clay loam having brownish mottles
Depth class: Very deep

Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 to 1 1/2 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy fluvial sediments

Minor soils
- The excessively drained, sandy Alaga soils on high stream terraces
- The moderately well drained, clayey Annemaine soils on steam terraces
- The poorly drained Bibb soils in concave positions on low parts of flood plains
- The well drained Cahaba soils in convex positions on stream terraces
- The poorly drained Trebloc soils in depressions and on flats on low stream terraces

Use and Management

Major uses: Mostly woodland and wildlife habitat; a small acreage of cultivated crops, pasture, and hay

Cropland
Management concerns: Jena—flooding; Quitman and Stough—flooding and wetness

Pasture and hayland
Management concerns: Jena—flooding; Quitman and Stough—flooding and wetness

Woodland
Management concerns: Jena—competition from undesirable plants; Quitman and Stough—restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Jena—flooding; Quitman and Stough—flooding, wetness, and restricted permeability

4. Savannah-Stough

Nearly level to moderately sloping, moderately well drained and somewhat poorly drained, loamy soils on stream terraces

Setting

Location in the survey area: Parallel to major streams throughout the county
Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Savannah—summits and side slopes on high terraces; Stough—slightly convex positions on low terraces
Slope: 0 to 8 percent

Composition

Percent of the survey area: 11
Savannah soils: 69 percent
Stough soils: 19 percent
Minor soils: 12 percent, including Cahaba, Ora, Prentiss, Ruston, and Sweatman soils

Soil Characteristics

Savannah
Surface layer: Dark brown fine sandy loam
Subsurface layer: Pale brown fine sandy loam
Subsoil: Upper part—yellowish brown loam; next part—yellowish brown loam fragipan; lower part—mottled brownish, grayish, and reddish clay loam fragipan
Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Slope: 0 to 8 percent
Parent material: Loamy sediments

Stough
Surface layer: Very dark brown fine sandy loam
Subsurface layer: Light brownish gray fine sandy loam
Subsoil: Upper part—light yellowish brown fine sandy loam that has grayish and brownish mottles; next part—yellowish brown sandy loam that has grayish mottles; lower part—light brownish gray loam, light gray and light yellowish brown sandy clay loam that has brownish mottles, and gray clay loam
Depth class: Very deep
Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 to 1 1/2 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy sediments

Minor soils
- The well drained Cahaba soils in convex positions on low stream terraces
- The moderately well drained Ora soils, which are in convex positions on high terraces and have reddish colors in the subsoil
- The moderately well drained Prentiss soils, which are in convex positions on high stream terraces and have a lower content of clay in the subsoil than the Savannah soils
- The well drained Ruston soils on summits of ridges at the higher elevations
- The well drained, clayey Sweatman soils on summits and side slopes of narrow ridges

Use and Management

Major uses: Mostly cultivated crops, pasture, and hay; a small acreage of woodland

Cropland
Management concerns: Savannah—erodibility and wetness; Stough—flooding and wetness

Pasture and hayland
Management concerns: Savannah—erodibility and wetness; Stough—flooding and wetness

Woodland
Management concerns: Restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Savannah—restricted permeability, wetness, and low strength; Stough—flooding, restricted permeability, and wetness

5. Smithdale-Ruston

Nearly level to steep, well drained, loamy soils on uplands

Setting

Location in the survey area: Southern and central parts
Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Smithdale—side slopes and backslopes; Ruston—summits and shoulder slopes
Slope: 0 to 40 percent

Composition

Percent of the survey area: 27
Smithdale soils: 41 percent
Ruston soils: 40 percent
Minor soils: 19 percent, including Bibb, Ora, Savannah, Stough, and Sweatman soils

Soil Characteristics

Smithdale
Surface layer: Dark grayish brown fine sandy loam
Subsurface layer: Yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam and loam; lower part—red sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 8 to 40 percent
Parent material: Loamy sediments

Ruston
Surface layer: Brown fine sandy loam
Subsoil: Upper part—yellowish red clay loam and loam; next part—yellowish red fine sandy loam and streaks of light yellowish brown fine sandy loam; lower part—red loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 8 percent
Parent material: Loamy sediments

Minor soils
- The poorly drained Bibb soils on narrow flood plains
- The moderately well drained Ora soils in positions similar to those of the Ruston soil
- The moderately well drained Savannah soils on summits of high terraces
- The somewhat poorly drained Stough soils on low stream terraces
- The clayey Sweatman soils on summits and side slopes of narrow ridges

Use and Management

Major uses: Cultivated crops, pasture, and hay in the smoother, gently sloping areas; woodland in the steeper areas

Cropland
Management concerns: Smithdale—erodibility and restricted use of equipment in the steeper areas; Ruston—erodibility

Pasture and hayland
Management concerns: Smithdale—erodibility and restricted use of equipment in the steeper areas; Ruston—erodibility

Woodland
Management concerns: Smithdale—erodibility and restricted use of equipment in steeper areas; Ruston—no significant limitations

Urban development
Management concerns: Smithdale—slope; Ruston—restricted permeability

6. Sweatman-Smithdale-Ora

Gently sloping to steep, well drained, clayey and loamy soils and moderately well drained, loamy soils; on uplands

Setting

Location in the survey area: Northern part
Landscape: Coastal Plain uplands

Landform: Ridges
Landform position: Sweatman—summits, side slopes, and backslopes; Smithdale—side slopes and backslopes; Ora—summits and shoulder slopes
Slope: 2 to 40 percent

Composition

Percent of the survey area: 24
Sweatman soils: 38 percent
Smithdale soils: 26 percent
Ora soils: 10 percent
Minor soils: 26 percent, including Bibb, Boswell, Savannah, and Stough soils

Soil Characteristics

Sweatman
Surface layer: Dark brown fine sandy loam
Subsoil: Upper part—red clay; lower part—mottled reddish, brownish, and grayish clay
Substratum: Upper part—yellowish red sandy loam; lower part—stratified reddish, brownish, and grayish shale, loamy sand, and sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 2 to 35 percent
Parent material: Stratified clayey, sandy, and loamy marine sediments

Smithdale
Surface layer: Dark grayish brown fine sandy loam
Subsurface layer: Yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam and loam; lower part—red sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 8 to 40 percent
Parent material: Loamy sediments

Ora
Surface layer: Dark brown fine sandy loam
Subsurface layer: Yellowish brown fine sandy loam
Subsoil: Upper part—yellowish red clay loam and loam; next part—yellowish red sandy loam fragipan that has grayish and brownish mottles; lower part—yellowish red sandy clay loam that has brownish mottles
Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 2 to $3^1/_2$ feet from January through April
Slope: 2 to 8 percent
Parent material: Loamy sediments

Minor soils
- The poorly drained Bibb soils on narrow flood plains
- The moderately well drained, clayey Boswell soils on summits of broad ridges and on toeslopes
- The moderately well drained, loamy Savannah soils on summits of high terraces
- The somewhat poorly drained Stough soils on low terraces

Use and Management

Major uses: Woodland in the steeper areas; cultivated crops, pasture, and hay in the more gently sloping areas

Cropland
Management concerns: Sweatman and Smithdale—erodibility and restricted use of equipment; Ora—wetness and erodibility

Pasture and hayland
Management concerns: Sweatman and Smithdale—erodibility and restricted use of equipment; Ora—wetness and erodibility

Woodland
Management concerns: Sweatman and Smithdale—erodibility and restricted use of equipment in the steeper areas; Ora—competition from undesirable plants

Urban development
Management concerns: Sweatman—shrink-swell potential, restricted permeability, low strength, and slope; Smithdale—slope; Ora—wetness, restricted permeability, and low strength

7. Savannah-Smithdale-Ora

Nearly level to steep, moderately well drained, loamy soils that have a fragipan and well drained, loamy soils; on uplands and stream terraces

Setting

Location in the survey area: Southern, east-central, and western parts
Landscape: Coastal Plain uplands
Landform: Ridges and stream terraces
Landform position: Savannah—summits on ridges and high terraces; Smithdale—side slopes and backslopes; Ora—summits and shoulder slopes on ridges and high terraces
Slope: 0 to 40 percent

Composition

Percent of the survey area: 10
Savannah soils: 51 percent

Smithdale soils: 21 percent
Ora soils: 15 percent
Minor soils: 13 percent, including Bibb, Boswell, Kirkville, Quitman, Stough, and Sweatman soils

Soil Characteristics

Savannah
Surface layer: Dark brown fine sandy loam
Subsurface layer: Pale brown fine sandy loam
Subsoil: Upper part—yellowish brown loam; next part—yellowish brown loam fragipan; lower part—mottled brownish, grayish, and reddish clay loam fragipan
Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Slope: 0 to 8 percent
Parent material: Loamy sediments

Smithdale
Surface layer: Dark grayish brown fine sandy loam
Subsurface layer: Yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam and loam; lower part—red sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 8 to 40 percent
Parent material: Loamy sediments

Ora
Surface layer: Dark brown fine sandy loam
Subsurface layer: Yellowish brown fine sandy loam
Subsoil: Upper part—yellowish red clay loam and loam; next part—yellowish red sandy loam fragipan that has grayish and brownish mottles; lower part—yellowish red sandy clay loam that has brownish mottles
Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 2 to 3 1/2 feet from January through April
Slope: 2 to 8 percent
Parent material: Loamy sediments

Minor soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The moderately well drained, clayey Boswell soils on summits of broad ridges and on toeslopes
• The somewhat poorly drained Stough and Quitman soils on low terraces
• The clayey Sweatman soils on side slopes and backslopes

Use and Management

Major uses: Cultivated crops, pasture, and hay in the smoother, gently sloping areas; woodland in the steeper areas

Cropland
Management concerns: Savannah and Ora—erodibility and wetness; Smithdale—erodibility and restricted use of equipment in the steeper areas

Pasture and hayland
Management concerns: Savannah and Ora—erodibility and wetness; Smithdale—erodibility and restricted use of equipment in the steeper areas

Woodland
Management concerns: Savannah and Ora—competition from undesirable plants; Smithdale—erodibility and restricted use of equipment in the steeper areas

Urban development
Management concerns: Savannah and Ora—restricted permeability, wetness, and low strength; Smithdale—slope

8. Smithdale-Ruston-Ora

Gently sloping to steep, well drained and moderately well drained, loamy soils on uplands

Setting

Location in the survey area: Southwestern part
Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Smithdale—side slopes and backslopes; Ruston—summits, shoulder slopes, and side slopes; Ora—summits, shoulder slopes, and side slopes
Slope: 0 to 40 percent

Composition

Percent of the survey area: 4
Smithdale soils: 40 percent
Ruston soils: 37 percent
Ora soils: 11 percent
Minor soils: 12 percent, including Bibb, Kirkville, Heidel, Quitman, Savannah, Stough, and Sweatman soils

Soil Characteristics

Smithdale
Surface layer: Dark grayish brown fine sandy loam

Subsurface layer: Yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam and loam; lower part—red sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 8 to 40 percent
Parent material: Loamy sediments

Ruston
Surface layer: Brown fine sandy loam
Subsoil: Upper part—yellowish red clay loam and loam; next part—yellowish red sandy loam and streaks of light yellowish brown fine sandy loam; lower part—red loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 8 percent
Parent material: Loamy sediments

Ora
Surface layer: Dark brown fine sandy loam
Subsurface layer: Yellowish brown fine sandy loam
Subsoil: Upper part—yellowish red clay loam and loam; next part—yellowish red sandy loam fragipan that has grayish and brownish mottles; lower part—yellowish red sandy clay loam that has brownish mottles
Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 2 to 3$^{1}/_{2}$ feet from January through April
Slope: 2 to 8 percent
Parent material: Loamy sediments

Minor soils
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The well drained Heidel soils, which have a lower content of clay in the upper part of the subsoil than Smithdale, Ruston, or Ora soils and are in positions similar to those of the Smithdale soils
- The moderately well drained Savannah soils on summits of high terraces
- The somewhat poorly drained Quitman and Stough soils on low terraces
- The clayey Sweatman soils in positions similar to those of the Smithdale soil

Use and Management

Major uses: Mostly woodland; cultivated crops, pasture, and hay in scattered smoother, more gently sloping areas

Cropland
Management concerns: Smithdale—erodibility and restricted use of equipment in the steeper areas; Ruston—erodibility; Ora—wetness and erodibility

Pasture and hayland
Management concerns: Smithdale—erodibility and restricted use of equipment in the steeper areas; Ruston—erodibility; Ora—wetness and erodibility

Woodland
Management concerns: Smithdale—erodibility and restricted use of equipment in the steeper areas; Ruston—no significant limitations; Ora—competition from undesirable plants

Urban development
Management concerns: Smithdale—steepness of slope; Ruston—restricted permeability; Ora—wetness, restricted permeability, and low strength

9. Ichusa-Freest-Maytag

Nearly level to moderately sloping, somewhat poorly drained and moderately well drained, loamy and clayey soils on uplands

Setting

Location in the survey area: Northeastern part
Landscape: Jackson Prairie
Landform: Ridges
Landform position: Summits, side slopes, and backslopes
Slope: 0 to 8 percent

Composition

Percent of the survey area: 5
Ichusa soils: 42 percent
Freest soils: 21 percent
Maytag soils: 10 percent
Minor soils: 27 percent, including Adaton, Boswell, Louin, Leeper, Savannah, Smithdale, Sweatman, and Urbo soils

Soil Characteristics

Ichusa
Surface layer: Very dark grayish brown silty clay loam
Subsurface layer: Yellowish brown silty clay loam that has grayish mottles
Subsoil: Upper part—mottled grayish, reddish, and brownish clay; next part—brownish yellow and light olive brown clay that has grayish mottles; lower part—mottled grayish, brownish, and yellowish clay
Depth class: Very deep

Drainage class: Somewhat poorly drained
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Slope: 2 to 8 percent
Parent material: Clayey marine sediments

Freest
Surface layer: Dark brown fine sandy loam
Subsurface layer: Pale brown sandy loam
Subsoil: Upper part—yellowish brown loam and clay loam having grayish and brownish mottles; next part—light brownish gray clay loam and clay having reddish and grayish mottles; lower part—light brownish gray and strong brown clay that has brownish and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Perched, at a depth of 1 1/2 to 2 1/2 feet from January through April
Slope: 2 to 8 percent
Parent material: Loamy and clayey sediments

Maytag
Surface layer: Very dark grayish brown silty clay
Subsurface layer: Dark grayish brown and light olive brown silty clay
Subsoil: Upper part—light olive brown and light yellowish brown clay that has brownish and grayish mottles; next part—light yellowish brown silty clay and pale yellow clay having brownish and grayish mottles; lower part—mottled yellowish and brownish clay
Substratum: Light brownish gray clay that has yellowish, brownish, and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 8 percent
Parent material: Alkaline, clayey marine sediments

Minor soils
- The poorly drained, loamy Adaton soils on low terraces
- The moderately well drained Boswell soils on summits and side slopes at higher elevations
- The somewhat poorly drained Leeper and Urbo soils on flood plains
- The somewhat poorly drained Louin soils on broad flats in the uplands
- The moderately well drained, loamy Savannah soils on summits at higher elevations
- The well drained, loamy Smithdale soils on side slopes
- The well drained, clayey Sweatman soils on summits and side slopes of narrow ridges

Use and Management

Major uses: Mostly woodland; a small acreage of cultivated crops, pasture, and hay

Cropland
Management concerns: Ichusa—erodibility, wetness, and poor tilth; Freest—wetness and erodibility; Maytag—erodibility and poor tilth

Pasture and hayland
Management concerns: Ichusa and Maytag—erodibility and wetness; Freest—wetness and erodibility

Woodland
Management concerns: Ichusa—restricted use of equipment, seedling survival, and competition from undesirable plants; Freest—restricted use of equipment and competition from undesirable plants; Maytag—seedling survival; unsuited to pine trees because of excess alkalinity

Urban development
Management concerns: Ichusa—wetness, shrink-swell potential, restricted permeability, cutbanks cave, and low strength; Freest—wetness, restricted permeability, low strength, and shrink-swell potential; Maytag—shrink-swell potential, restricted permeability, low strength, and cutbanks cave

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, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Ichusa silty clay loam, 2 to 5 percent slopes, is a phase of the Ichusa 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. Savannah-Boswell complex, 2 to 8 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. Una and Urbo 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. The Pits component of the Pits-Udorthents complex is an example.

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

Ad—Adaton silt loam, 0 to 2 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Flat to slightly concave slopes
Shape of areas: Irregular
Size of areas: 5 to 30 acres

Composition

Adaton and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown silt loam

Subsurface layer:
2 to 6 inches—brown silt loam that has brownish mottles

Subsoil:
6 to 28 inches—light brownish gray silty clay loam that has brownish mottles
28 to 40 inches—grayish brown silty clay that has brownish mottles
40 to 60 inches—light brownish gray silt loam that has brownish and yellowish mottles
60 to 72 inches—light brownish gray silty clay loam that has reddish and brownish mottles
72 to 81 inches—light brownish gray silty clay loam that has grayish and brownish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Poorly drained
Permeability: Slow
Available water capacity: High
Seasonal high water table: Apparent, at the surface to a depth of 1/2 foot from December through April
Shrink-swell potential: Moderate
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
- The moderately well drained Freest soils on convex knolls
- The somewhat poorly drained Stough soils in the slightly higher, more convex positions
- The clayey, somewhat poorly drained Urbo soils on narrow flood plains

Land Use

Dominant uses: Woodland
Other uses: Cropland, pasture, and hayland

Cropland
Suitability: Suited
Commonly grown crops: Corn, soybeans, and grain sorghum
Management concerns: Wetness
Management measures and considerations:
- A well maintained drainage system that includes open ditches and land shaping increases productivity.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Common bermudagrass, bahiagrass, and white clover
Management concerns: Wetness
Management measures and considerations:
- A well maintained drainage system that includes open ditches and land shaping increases productivity.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

Woodland
Suitability: Suited
Productivity class: High for loblolly pine and hardwoods
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
• Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
• Bedding the soil prior to planting helps to establish seedlings and increases the seedling survival rate.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—fair; wetland wildlife—good
Management concerns: Wetness and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Wetness
Management measures and considerations:
• Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Managing this map unit for septic tank absorption fields is difficult because of the seasonal high water table.
• The local Health Department can be contacted for additional guidance regarding septic tank absorption fields.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength, wetness
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Wetness
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• A surface or subsurface drainage system may be needed in some areas.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIw
Woodland ordination symbol: 8W for loblolly pine

Ag—Alaga loamy fine sand, 0 to 3 percent slopes, rarely flooded

Setting

Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Convex slopes on summits and shoulder slopes
Shape of areas: Oblong
Size of areas: 5 to 40 acres

Composition

Alaga and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown loamy fine sand

Substratum:
6 to 11 inches—yellowish brown loamy fine sand
11 to 36 inches—brownish yellow loamy fine sand that has brownish mottles in the lower part
36 to 52 inches—very pale brown fine sand that has yellowish mottles
52 to 80 inches—very pale brown fine sand that has mottles in shades of yellow and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: Rare
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Fair

Minor Components

Dissimilar soils

- The clayey Annemaine soils in the slightly lower positions
- The poorly drained Bibb soils in narrow drainageways
- The loamy Cahaba soils in the slightly lower positions

Similar soils

- Sandy soils that have a seasonal high water table within a depth of 4 feet

Land Use

Dominant uses: Woodland and pasture
Other uses: Cropland and hayland

Cropland

Suitability: Suited
Commonly grown crops: Cotton, small grains, and vegetables
Management concerns: Droughtiness, nutrient leaching, and fertility
Management measures and considerations:

- Conservation tillage, winter cover crops, crop residue management, and crop rotations that include grasses and legumes help to increase available water capacity, minimize crusting, and improve fertility.
- Applying supplemental irrigation and planting crop varieties that are adapted to droughty conditions increase productivity.
- Using split applications increases the effectiveness of fertilizer and herbicides.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland

Suitability: Suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Droughtiness, nutrient leaching, and fertility
Management measures and considerations:

- Applying supplemental irrigation and seeding plant varieties that are adapted to droughty conditions increase productivity.
- Using split applications increases the effectiveness of fertilizer and herbicides.
- During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland

Suitability: Suited
Productivity class: Moderately high for loblolly pine
Management concerns: Seedling survival
Management measures and considerations:

- Planting high-quality seedlings in a shallow furrow increases the seedling survival rate.
- Using improved varieties of loblolly pine increases productivity.

Wildlife habitat

Potential to support habitat for: Openland wildlife—fair; woodland wildlife—poor; wetland wildlife—very poor
Management concerns: Droughtiness and fertility
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.

Dwellings

Suitability: Poorly suited
Management concerns: Flooding
Management measures and considerations:

- Constructing dwellings on elevated, well-compacted fill material helps to minimize damage from the flooding.

Septic tank absorption fields

Suitability: Poorly suited
Management concerns: Poor filtering capacity
Management measures and considerations:

- The soil readily absorbs, but does not adequately filter, effluent. Measures that improve filtering capacity should be considered.
- The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Flooding
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.

Lawns and landscaping
Suitability: Suited
Management concerns: Droughtiness, fertility, and nutrient leaching
Management measures and considerations:
• Applying supplemental irrigation and planting varieties that are adapted to droughty conditions increases the survival rate of grasses and landscaping plants.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.
• Using split applications increases the effectiveness of fertilizer and lime.

Interpretive Groups

Land capability classification: IIIs
Woodland ordination symbol: 8S for loblolly pine

An—Annemaine fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Convex slopes on nearly level summits
Shape of areas: Oblong
Size of areas: 5 to 60 acres

Composition

Annemaine and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 7 inches—dark brown fine sandy loam

Subsoil:
7 to 20 inches—yellowish red clay
20 to 26 inches—yellowish red clay loam that has mottles in shades of red and gray
26 to 36 inches—yellowish red sandy clay loam that has mottles in shades of gray and brown
36 to 54 inches—mottled light yellowish brown, light brownish gray, yellowish red, and brownish yellow loam

Substratum:
54 to 73 inches—light brownish gray sandy loam that has brownish mottles
73 to 88 inches—strong brown sandy loam that has mottles in shades of red and gray

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 1/2 feet from January through April
Shrink-swell potential: Moderate
Frequency of flooding: Rare
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The well drained, loamy Cahaba soils in the slightly higher positions
• The somewhat poorly drained, loamy Quitman soils in the slightly lower, less convex positions
• The somewhat poorly drained Urbo and poorly drained Una soils in swales and sloughs

Similar soils
• Well drained, clayey soils in the slightly higher, more convex positions

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, soybeans, grain sorghum, and vegetables
Management concerns: Wetness
Management measures and considerations:
• A well maintained drainage system reduces wetness and improves productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass, coastal bermudagrass, and white clover
Management concerns: Wetness
Management measures and considerations:
• Proper stocking rates and restricted grazing during

wet periods help to prevent compaction and keep the pasture in good condition.
• During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants and equipment use
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
• Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Flooding and shrink-swell
Management measures and considerations:
• Constructing dwellings on elevated, well-compacted fill material helps to minimize damage from the flooding.
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Managing this map unit for septic tank absorption fields is difficult because of the seasonal high water table.
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the flooding and wetness.

Lawns and landscaping
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• A surface drainage system may be needed in some areas.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9W for loblolly pine

Bb—Bibb fine sandy loam, frequently flooded

Setting

Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes
Slope: 0 to 1 percent
Shape of areas: Long and narrow
Size of areas: 5 to 750 acres

Composition

Bibb and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 3 inches—dark brown fine sandy loam

Subsurface layer:
3 to 10 inches—grayish brown loam

Substratum:
10 to 20 inches—light brownish gray loam
20 to 26 inches—very dark grayish brown loam
26 to 40 inches—light brownish gray sandy loam
40 to 44 inches—grayish brown loamy sand
44 to 48 inches—light brownish gray sand
48 to 80 inches—stratified light brownish gray sand and grayish brown loamy sand

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: Apparent, at a depth of 1/2 to 1 foot from December through April
Shrink-swell potential: Low
Frequency of flooding: Frequent
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Good
Other distinctive properties: Subject to scouring and deposition from fast-flowing floodwater

Minor Components

Dissimilar soils
- The well drained Jena and moderately well drained Kirkville soils on the higher parts of natural levees
- The somewhat poorly drained Quitman and Stough soils on the slightly higher knolls and remnants of low stream terraces

Similar soils
- Scattered areas of poorly drained soils that have more clay in the substratum than the Bibb soils

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture and hayland

Cropland
Suitability: Poorly suited
Commonly grown crops: Soybeans and grain sorghum
Management concerns: Flooding and wetness
Management measures and considerations:
- This map unit is severely limited for crop production because of the flooding and wetness.
- A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Bahiagrass, common bermudagrass, and white clover
Management concerns: Flooding and wetness
Management measures and considerations:
- Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Productivity class: Very high for loblolly pine and hardwoods
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
- Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
- Bedding the soil prior to planting helps to establish seedlings and increases the seedling survival rate.
- Site preparation practices, such as applying herbicides and chopping, help to control competition from unwanted plants.
- Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—fair; wetland wildlife—good
Management concerns: Equipment use, flooding, and wetness
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding

Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding and wetness.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Constructing roads on raised, well-compacted fill material helps to overcome the flooding and wetness.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding and the seasonal high water table. Use is severely limited during periods of inundation.
• Areas within this map unit may need surface drainage.

Interpretive Groups

Land capability classification: Vw
Woodland ordination symbol: 11W for loblolly pine

BoB2—Boswell loam, 2 to 5 percent slopes, eroded

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits of narrow ridges, side slopes, and toeslopes
Shape of areas: Irregular
Size of areas: 5 to 175 acres

Composition

Boswell and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown loam

Subsoil:
2 to 15 inches—yellowish red and red clay
15 to 28 inches—red clay that has brownish and grayish mottles
28 to 50 inches—light brownish gray clay that has mottles in shades of red and brown
50 to 73 inches—red and yellowish red clay that has mottles in shades of gray and brown
73 to 77 inches—light brownish gray clay that has mottles in shades of red and brown

Substratum:
77 to 93 inches—light gray clay that has mottles in shades of red, yellow, gray, and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Poor
Other distinctive properties: Intersecting slickensides in the lower part of the subsoil

Minor Components

Dissimilar soils
• The loamy Ora and Savannah soils on high knolls
• The well drained Sweatman soils in positions similar to those of the Boswell soils
• The loamy Smithdale soils on the upper parts of slopes
• Boswell soils that have slopes of less than 2 percent or more than 5 percent

Similar soils
• Scattered areas of Boswell soils that have a surface layer of silt loam or fine sandy loam

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, corn, and grain sorghum
Management concerns: Erodibility and tilth
Management measures and considerations:
• Contour farming, conservation tillage, crop residue management, stripcropping, and sod-based rotations reduce the hazard of further erosion, stabilize the soil,

help to control surface runoff, and increase the rate of water infiltration.
• Restricting tillage to dry periods helps to prevent clodding and crusting and increases the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass, coastal bermudagrass, ryegrass, white clover, and red clover
Management concerns: Erodibility
Management measures and considerations:
• Special care should be taken to prevent further erosion when pastures are renovated or seedbeds are established.
• Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
• During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: High for loblolly pine
Management concerns: Equipment use
Management measures and considerations:
• Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
• Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
• Establishing a permanent plant cover on roads and landings after the completion of logging helps to control further erosion and the siltation of streams.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
• Care should be taken to prevent further erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength, shrink-swell
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of further erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Tilth and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.

• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8C for loblolly pine

BoC2—Boswell loam, 5 to 8 percent slopes, eroded

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes, backslopes, and toeslopes
Shape of areas: Irregular
Size of areas: 5 to 175 acres

Composition

Boswell and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown loam

Subsoil:
2 to 15 inches—yellowish red and red clay
15 to 28 inches—red clay that has brownish and grayish mottles
28 to 50 inches—light brownish gray clay that has mottles in shades of red and brown
50 to 73 inches—red and yellowish red clay that has mottles in shades of gray and brown
73 to 77 inches—light brownish gray clay that has mottles in shades of red and brown

Substratum:
77 to 93 inches—light gray clay that has mottles in shades of red, yellow, gray, and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Very slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Poor
Other distinctive properties: Intersecting slickensides in the lower part of the subsoil

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The loamy Smithdale soils on the upper parts of slopes and on narrow ridges
• The well drained Sweatman soils in positions similar to those of the Boswell soils
• Boswell soils that have slopes of less than 5 percent or more than 8 percent

Similar soils
• Scattered areas of Boswell soils that have a surface layer of silt loam or fine sandy loam

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Poorly suited
Commonly grown crops: Cotton, soybeans, corn, and grain sorghum
Management concerns: Erodibility and tilth
Management measures and considerations:
• Contour farming, conservation tillage, crop residue management, stripcropping, and sod-based rotations reduce the hazard of further erosion, stabilize the soil, help to control surface runoff, and increase the rate of water infiltration.
• Restricting tillage to dry periods helps to prevent clodding and crusting and increases the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility
Management measures and considerations:
• Special care should be taken to prevent further erosion when pastures are renovated or seedbeds are established.
• Preparing seedbeds on the contour or across the slope reduces the hazard of further erosion and increases the rate of germination.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
• During the establishment, maintenance, or renovation of pasture and hayland, applying lime and

fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: High for loblolly pine
Management concerns: Equipment use
Management measures and considerations:
• Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
• Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
• Establishing a permanent plant cover on roads and landings after the completion of logging helps to control further erosion and the siltation of streams.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling (fig. 2).
• Care should be taken to prevent further erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability

Figure 2.—Structural damage caused by shrinking and swelling of the soil in an area of Boswell loam, 5 to 8 percent slopes, eroded. Damage to walls and foundations is common where buildings are constructed on soils that have a high shrink-swell potential.

Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength, shrink-swell
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of further erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Tilth and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8C for loblolly pine

Ca—Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Convex slopes on nearly level surfaces
Shape of areas: Oblong
Size of areas: 5 to 60 acres

Composition

Cahaba and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 5 inches—dark brown fine sandy loam

Subsurface layer:
5 to 10 inches—dark yellowish brown loam

Subsoil:
10 to 36 inches—yellowish red loam
36 to 45 inches—yellowish red sandy loam

Substratum:
45 to 68 inches—strong brown loamy sand that has brownish mottles
68 to 81 inches—yellowish brown fine sand that has mottles in shades of gray and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: Rare
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The moderately well drained, clayey Annemaine soils in the slightly lower, less convex positions
• The somewhat poorly drained Quitman soils in the lower, less convex positions
• The moderately well drained Prentiss soils on convex knolls

Similar soils
• Scattered areas of well drained, loamy soils that have brownish subsoil layers

Land Use

Dominant uses: Cropland, pasture, and hayland
Other uses: Woodland

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: No significant limitations affect management of cropland.
Management measures and considerations:
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass (fig. 3)
Management concerns: No significant limitations affect management of pasture and hayland.
Management measures and considerations:
• During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
• Planting appropriate species as recommended by a forester helps to maximum productivity and to ensure seedling survival.

Figure 3.—An area of Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded. This well managed stand of bahiagrass provides excellent forage for these cattle.

Wildlife habitat

Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor

Management concerns: No significant limitations affect management of wildlife habitat.

Management measures and considerations:

• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.

• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.

• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings

Suitability: Poorly suited

Management concerns: Flooding

Management measures and considerations:

• Constructing dwellings on elevated, well-compacted fill material helps to minimize damage from the flooding.

Septic tank absorption fields

Suitability: Suited

Management concerns: Flooding

Management measures and considerations:
• Septic tank absorption fields do not function properly during periods of flooding and may be damaged by floodwater.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Flooding
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.

Lawns and landscaping
Suitability: Well suited
Management concerns: No significant limitations affect lawns and landscaping.
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: I
Woodland ordination symbol: 10A for loblolly pine

FrB—Freest fine sandy loam, 2 to 5 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Shape of areas: Irregular
Size of areas: 5 to 220 acres

Composition

Freest and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown and very dark grayish brown fine sandy loam

Subsurface layer:
6 to 8 inches—pale brown sandy loam that has brownish mottles

Subsoil:
8 to 17 inches—yellowish brown loam that has brownish mottles
17 to 27 inches—yellowish brown clay loam that has mottles in shades of gray and brown
27 to 41 inches—light brownish gray clay loam that has mottles in shades of gray, red, and brown
41 to 53 inches—light brownish gray clay that has mottles in shades of red and brown
53 to 71 inches—light brownish gray clay that has mottles in shades of brown
71 to 81 inches—strong brown clay that has mottles in shades of gray, yellow, and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 1/2 to 2 1/2 feet from January through April
Shrink-swell potential: Moderate in the upper part of the subsoil and high in the lower part
Frequency of flooding: None
Hazard of erosion: Moderate
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The clayey Boswell soils in saddles and on the lower parts of slopes
• Ora and Savannah soils, which have a fragipan, on the higher knolls
• The somewhat poorly drained Quitman soils in the lower, less convex positions
• Freest soils that have slopes of less than 2 percent or more than 5 percent

Similar soils
• Scattered areas of moderately well drained, loamy soils that have a significant accumulation of plinthite in the lower part of the subsoil

Land Use

Dominant uses: Woodland
Other uses: Cropland, pasture, and hayland

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, corn, soybeans, grain sorghum, and vegetables
Management concerns: Erodibility
Management measures and considerations:
• Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.

• Tilling when the soil has the proper moisture content helps to prevent clodding and crusting.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and wetness
Management measures and considerations:
• Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increases the rate of germination.
• Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
• During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
• Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Erodibility and wetness
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength, shrink-swell
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Quickly establishing permanent ground cover helps to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9W for loblolly pine

FrC—Freest fine sandy loam, 5 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes, backslopes, and toeslopes
Shape of areas: Irregular
Size of areas: 5 to 220 acres

Composition

Freest and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown and very dark grayish brown fine sandy loam

Subsurface layer:
6 to 8 inches—pale brown sandy loam that has brownish mottles

Subsoil:
8 to 17 inches—yellowish brown loam that has brownish mottles
17 to 27 inches—yellowish brown clay loam that has mottles in shades of gray and brown
27 to 41 inches—light brownish gray clay loam that has mottles in shades of gray, red, and brown
41 to 53 inches—light brownish gray clay that has mottles in shades of red and brown
53 to 71 inches—light brownish gray clay that has mottles in shades of brown
71 to 81 inches—strong brown clay that has mottles in shades of gray, yellow, and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 1/2 to 2 1/2 feet from January through April
Shrink-swell potential: Moderate in the upper part of the subsoil and high in the lower part
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
- The clayey Boswell and Sweatman soils on the lower parts of slopes
- The well drained Smithdale soils on the upper parts of slopes
- Ora and Savannah soils, which have a fragipan, on summits of narrow ridges
- The poorly drained Bibb soils on narrow flood plains
- Freest soils that have slopes of less than 5 percent or more than 8 percent

Similar soils
- Scattered areas of moderately well drained, loamy soils that have a significant accumulation of plinthite in the lower part of the subsoil

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Poorly suited
Commonly grown crops: Cotton, corn, soybeans, and grain sorghum
Management concerns: Erodibility
Management measures and considerations:
- Contour farming, conservation tillage, crop residue management, stripcropping, and sod-based rotations reduce the hazard of erosion, stabilize the soil, help to control surface runoff, and increase the rate of water infiltration.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting and increases the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass, coastal bermudagrass, ryegrass, white clover, and red clover
Management concerns: Erodibility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited

Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
• Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Erodibility
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Shrink-swell and low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Quickly establishing permanent ground cover helps to stabilize the soil and minimizes erosion.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9W for loblolly pine

HeD—Heidel sandy loam, 8 to 15 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 500 acres

Composition

Heidel and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown sandy loam

Subsurface layer:
6 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 30 inches—yellowish red sandy loam
30 to 55 inches—yellowish red loam
55 to 80 inches—yellowish red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar

- Ruston soils, which have a higher content of clay in the subsoil than the Heidel soil; on summits of narrow ridges
- Small areas of sandstone rock outcrop on shoulder slopes
- Smithdale soils, which have a higher content of clay in the subsoil than the Heidel soil; in positions similar to those of the Heidel soil
- The clayey Sweatman soils on toeslopes
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- Heidel soils that have slopes of less than 8 percent or more than 15 percent

Similar soils

- Scattered areas of Heidel soils that have a surface layer of loamy sand or loamy fine sand

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture and hayland

Cropland

Suitability: Poorly suited
Commonly grown crops: Watermelons
Management concerns: Erodibility and equipment use
Management measures and considerations:

- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil conserving crops reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Cultivation should be restricted to the less sloping areas.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland

Suitability: Well suited to pasture; suited to hayland
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and equipment use
Management measures and considerations:

- The slope may limit equipment use in the steeper areas when hay is harvested.
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams helps to prevent streambank erosion and sedimentation.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland

Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: No significant limitations affect management of woodland.
Management measures and considerations:

- Installing broad base dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding disturbed areas with adapted grasses and legumes helps to control erosion and the siltation of streams.

Wildlife habitat

Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings

Suitability: Suited
Management concerns: Slope

Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.

Septic tank absorption fields
Suitability: Suited
Management concerns: Slope
Management measures and considerations:
• Installing the distribution lines on the contour improves system performance.

Local roads and streets
Suitability: Suited
Management concerns: Slope
Management measures and considerations:
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and slope
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 9A for loblolly pine

HeF—Heidel sandy loam, 15 to 35 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 500 acres

Composition

Heidel and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown sandy loam

Subsurface layer:
6 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 30 inches—yellowish red sandy loam
30 to 55 inches—yellowish red loam
55 to 80 inches—yellowish red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar
• Ruston soils, which have a higher content of clay in the subsoil than the Heidel soil; on summits of narrow ridges
• Small areas of sandstone rock outcrop on shoulder slopes
• Smithdale soils, which have a higher content of clay in the subsoil than the Heidel soil; in positions similar to those of the Heidel soils
• The clayey Sweatman soils on toeslopes
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• Heidel soils that have slopes of less than 15 percent or more than 35 percent

Similar soils
• Scattered areas of Heidel soils that have a surface layer of loamy sand or loamy fine sand

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland
Suitability: Unsuited
Management concerns: Slope and erodibility
• This map unit is severely limited for crop production

because of the slope and the severe hazard of erosion.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Special care should be taken to prevent erosion when pastures are renovated or seedbeds are established.
• The slope may limit equipment use in the steeper areas.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Productivity class: Very high for loblolly pine
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Installing broad base dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
• Reseeding disturbed areas with adapted grasses and legumes helps to control erosion and the siltation of streams.
• Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitations.
• Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife—poor; woodland wildlife—fair; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Installing the distribution lines on the contour improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Slope and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 9R for loblolly pine

IcB—Ichusa silty clay loam, 2 to 5 percent slopes

Setting

Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Side slopes and shoulder slopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres

Composition

Ichusa and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown silty clay loam

Subsurface layer:
4 to 11 inches—yellowish brown silty clay loam that has mottles in shades of gray and brown

Subsoil:
11 to 31 inches—mottled grayish, reddish, and brownish clay
31 to 40 inches—brownish yellow clay that has grayish mottles
40 to 53 inches—light olive brown clay that has grayish mottles
53 to 80 inches—mottled grayish, yellowish, and brownish clay

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Very high
Frequency of flooding: None
Hazard of erosion: Moderate
Content of organic matter in the surface layer: Medium
Tilth: Fair

Minor Components

Dissimilar soils
- The loamy Freest soils on high knolls and summits of narrow ridges
- The alkaline Maytag soils on the upper parts of slopes
- The somewhat poorly drained Leeper soils on narrow flood plains
- Ichusa soils that have slopes of less than 2 percent or more than 5 percent

Similar soils
- Scattered areas of Ichusa soils that have a surface layer of silt loam or loam

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn, soybeans, cotton, and small grains
Management concerns: Erodibility, equipment use, and tilth
Management measures and considerations:
- Stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting and increases the rate of water infiltration.
- Using equipment when the soil has the proper moisture content helps to prevent the rutting and compaction of the surface layer caused by the high content of clay.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Dallisgrass, bahiagrass, Johnsongrass, tall fescue, and white clover
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Using equipment when the soil has the proper moisture content helps to prevent the rutting and compaction of the surface layer caused by the high content of clay.
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use, seedling survival, and competition from undesirable plants

Management measures and considerations:
• Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces the seedling mortality rate, and increases early seedling growth.
• Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and compaction.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife habitat—good; wetland wildlife—poor
Management concerns: Equipment use and tilth
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the very slow permeability.
• The local Health Department can be contacted for additional guidance regarding septic tank absorption fields.

Local roads and streets
Suitability: Poorly suited
Management concerns: Shrink-swell potential, low strength, and cutbanks cave
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Designing roads to incorporate structures that remove excess water improves the stability of the cutbanks, which are subject to slumping.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Tilth and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Because of compaction, heavy equipment should not be used in areas that are to be landscaped.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9C for loblolly pine

IcC—Ichusa silty clay loam, 5 to 8 percent slopes

Setting

Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres

Composition

Ichusa and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown silty clay loam

Subsurface layer:
4 to 11 inches—yellowish brown silty clay loam that has mottles in shades of gray and brown

Subsoil:
11 to 31 inches—mottled grayish, reddish, and brownish clay
31 to 40 inches—brownish yellow clay that has grayish mottles
40 to 53 inches—light olive brown clay that has grayish mottles
53 to 80 inches—mottled grayish, yellowish, and brownish clay

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Very high
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Medium
Tilth: Fair

Minor Components

Dissimilar soils
- The moderately well drained Boswell soils in positions similar to those of the Ichusa soils
- The alkaline Maytag soils on the higher parts of slopes
- The alkaline Leeper soils on narrow flood plains
- The loamy Freest soils on summits of narrow ridges
- Ichusa soils that have slopes of less than 5 percent or more than 8 percent

Similar soils
- Scattered areas of Ichusa soils that have a surface layer of silt loam or loam

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Poorly suited
Commonly grown crops: Corn, soybeans, and small grains
Management concerns: Erodibility and tilth
Management measures and considerations:
- Stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting and increases the rate of water infiltration.
- Using equipment when the soil has the proper moisture content helps to prevent the rutting and compaction of the surface layer caused by the high content of clay.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Dallisgrass, bahiagrass, Johnsongrass, tall fescue, and white clover
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Using equipment when the soil has the proper moisture content helps to prevent the rutting and compaction of the surface layer caused by the high content of clay.
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces the seedling mortality rate, and increases early seedling growth.
- Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and compaction.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife—good; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Equipment use and wetness
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and

pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the very slow permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding septic tank absorption fields.

Local roads and streets
Suitability: Poorly suited
Management concerns: Shrink-swell and low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Designing roads to incorporate structures that remove excess water improves the stability of the cutbanks, which are subject to slumping.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Tilth and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Because of compaction, heavy equipment should not be used in areas that are to be landscaped.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 9C for loblolly pine

Je—Jena fine sandy loam, occasionally flooded

Setting

Landscape: Coastal Plain
Landform: Narrow flood plains
Landform position: Convex slopes on high and intermediate parts of natural levees
Slope: 0 to 3 percent
Shape of areas: Long and narrow
Size of areas: 5 to 200 acres

Composition

Jena and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown fine sandy loam

Subsoil:
6 to 27 inches—dark yellowish brown loam
27 to 45 inches—yellowish brown fine sandy loam
45 to 53 inches—yellowish brown sandy loam
53 to 81 inches—mottled brownish and grayish sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: Occasional

Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: Subject to scouring and deposition by fast-flowing floodwater

Minor Components

Dissimilar soils
• The poorly drained Bibb soils in depressions and sloughs
• Cahaba soils, which have a higher content of clay in the subsoil than the Jena soil; on remnants of low terraces
• The somewhat poorly drained Mantachie soils in the lower positions
• The moderately well drained Kirkville soils in the slightly lower positions

Similar soils
• Excessively drained sandy soils on the high parts of natural levees adjacent to stream channels

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, corn, soybeans, grain sorghum, and vegetables
Management concerns: Flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and spring, crop loss may occur during the growing season.
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited to pasture; suited to hayland
Commonly grown crops: Bahiagrass and common bermudagrass
Management concerns: Flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
• Harvesting hay as soon as possible reduces the risk of damage from the flooding.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—poor
Management concerns: Flooding
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding.

• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.

Lawns and landscaping
Suitability: Suited
Management concerns: Flooding
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 11A for loblolly pine

Kr—Kirkville fine sandy loam, occasionally flooded

Setting

Landscape: Coastal Plain
Landform: Narrow flood plains
Landform position: Slightly convex slopes on high and intermediate parts of natural levees
Slope: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 200 acres

Composition

Kirkville and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 5 inches—dark brown fine sandy loam

Subsoil:
5 to 14 inches—yellowish brown fine sandy loam
14 to 29 inches—yellowish brown loam that has mottles in shades of brown and gray
29 to 48 inches—light grayish brown loam that has brownish mottles
48 to 80 inches—light brownish gray sandy clay loam that has brownish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 1/2 feet from December through April
Shrink-swell potential: Low
Frequency of flooding: Occasional
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: Subject to scouring and deposition by fast-flowing floodwater

Minor Components

Dissimilar soils
• The poorly drained Bibb soils in depressions and sloughs
• Cahaba soils, which have a higher content of clay in the subsoil than the Kirkville soil; on remnants of low terraces
• The somewhat poorly drained Mantachie soils in the lower positions
• The well drained Jena soils in the slightly higher, more convex positions

Similar soils
• Excessively drained sandy soils on the high parts of natural levees adjacent to stream channels

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, corn, soybeans, grain sorghum, and vegetables
Management concerns: Flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and spring, crop loss may occur during the growing season.
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited to pasture; suited to hayland
Commonly grown crops: Bahiagrass and common bermudagrass
Management concerns: Flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.

• Harvesting hay as soon as possible reduces the risk of damage from the flooding.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
• Restricting logging to periods when the soil is not saturated minimizes rutting and the damage caused to tree roots by compaction.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Flooding
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.

Lawns and landscaping
Suitability: Suited
Management concerns: Flooding
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 11W for loblolly pine

Le—Leeper clay loam, occasionally flooded

Setting

Landscape: Jackson Prairie
Landform: Flood plains
Landform position: Flat to slightly concave slopes
Slope: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Leeper and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown clay loam

Subsoil:
6 to 19 inches—grayish brown clay loam that has brownish mottles
19 to 28 inches—grayish brown clay loam that has mottles in shades of gray and brown
28 to 38 inches—gray silty clay that has mottles in shades of red, gray, and brown

Substratum:
38 to 60 inches—gray clay that has mottles in shades of gray and brown
60 to 67 inches—gray clay that has brownish mottles
67 to 89 inches—light gray clay that has mottles in shades of brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Shrink-swell potential: High
Frequency of flooding: Occasional
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Fair
Other distinctive properties: Subject to scouring and deposition from fast-flowing floodwater

Minor Components

Dissimilar soils
- Poorly drained soils in depressions
- Scattered areas of Urbo soils, which are more acid throughout the profile than the Leeper soil

Similar soils
- Scattered areas of a Leeper soil that has a sandy surface layer

Land Use

Dominant uses: Woodland, pasture, and hayland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn, soybeans, and grain sorghum
Management concerns: Flooding, wetness, and equipment use
Management measures and considerations:
- Because of the potential for flooding during the growing season, managing this map unit for cultivated crops is difficult.
- Using well maintained open ditches and diversions to remove excess water improves productivity.
- Restricting field work to dry periods minimizes the rutting and compaction caused by the high content of clay in the soil.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting and increases the rate of water infiltration.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Dallisgrass, bahiagrass, Johnsongrass, common bermudagrass, tall fescue, and white clover
Management concerns: Wetness and flooding
Management measures and considerations:
- Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
- Using well maintained drainageways and ditches to remove excess water improves productivity.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.

Woodland
Suitability: Suited
Productivity class: High for eastern cottonwood
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
- Harvesting timber during the summer reduces the risk of damage from the flooding.
- Bedding the soil prior to planting helps to establish seedlings and increases the seedling survival rate.
- Site preparation practices, such as applying herbicides and chopping, help to control competition from unwanted plants.
- Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—fair
Management concerns: Wetness and flooding
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding

Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding, wetness, and restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding, wetness, and restricted permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding, shrink-swell, and low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Wetness, flooding, and tilth
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface drainage system may be needed in some areas.

Interpretive Groups

Land capability classification: IVw
Woodland ordination symbol: 11W for eastern cottonwood

LuA—Louin silty clay, 0 to 2 percent slopes

Setting

Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Nearly level flats and summits having gilgai microrelief
Shape of areas: Irregular
Size of areas: 10 to 100 acres

Composition

Louin and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown silty clay

Subsoil:
3 to 14 inches—yellowish brown clay that has grayish and brownish mottles
14 to 23 inches—yellowish brown clay that has grayish and brownish mottles and has large slickensides
23 to 49 inches—light brownish gray clay that has brownish mottles and has large slickensides
49 to 75 inches—mottled brownish and grayish clay that has large slickensides and has nodules of calcium carbonate
75 to 82 inches—yellowish brown clay that has grayish and yellowish mottles, large slickensides, and crystals of calcium carbonate

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Very high
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Poor
Other distinctive properties: Depth to a horizon that is neutral or alkaline is more than 36 inches

Minor Components

Dissimilar soils
• The moderately well drained Boswell soils on the slightly higher knolls
• Ichusa soils, which have brownish and reddish colors in the upper part of the subsoil; in the slightly higher, more convex positions
• Poorly drained soils in depressions

Similar soils
• Scattered areas of soils that have more clay in the subsoil than the Louin soil
• Scattered areas of a Louin soil that has a surface layer of silt loam

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn and grain sorghum
Management concerns: Wetness and equipment use
Management measures and considerations:
• Restricting field work to dry periods minimizes the rutting and compaction caused by the high content of clay in the soil.
• Delaying spring planting and tilling until the soil has the proper moisture content helps to prevent clodding and rutting.
• Using well maintained open ditches and diversions to remove excess water improves productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Bahiagrass, dallisgrass, Johnsongrass, tall fescue, and white clover
Management concerns: Wetness and equipment use
Management measures and considerations:
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Restricting field work to dry periods minimizes the rutting and compaction caused by the high content of clay in the soil.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Productivity class: High for loblolly pine
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
• Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
• Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces the seedling mortality rate, and increases early seedling growth.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—fair
Management concerns: Equipment use and wetness
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Wetness and shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
• Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Restricted permeability and wetness
• This map unit is severely limited as a site for septic tank absorption fields because of the very slow permeability and the seasonal high water table.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Shrink-swell, low strength, wetness, and cutbanks cave
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.

• Designing roads to incorporate structures that remove excess water improves the stability of the cutbanks, which are subject to slumping.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Wetness and tilth
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• A surface or subsurface drainage system may be needed in some areas.
• Because of compaction, heavy equipment should not be used in areas that are to be landscaped.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIw
Woodland ordination symbol: 8C for loblolly pine

Ma—Mantachie silt loam, frequently flooded

Setting

Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes on the lower parts of natural levees
Slope: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 200 acres

Composition

Mantachie and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

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

Subsoil:
3 to 11 inches—mottled brownish and grayish loam
11 to 25 inches—light brownish gray loam that has brownish mottles
25 to 40 inches—gray clay loam that has brownish mottles
40 to 68 inches—grayish brown clay loam that has brownish mottles
68 to 82 inches—gray sandy clay loam that has brownish and yellowish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Apparent, at a depth of 1 to $1^{1}/_{2}$ feet from December through April
Shrink-swell potential: Low
Frequency of flooding: Frequent
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Good
Other distinctive properties: Subject to scouring and deposition from fast-flowing floodwater

Minor Components

Dissimilar soils
• The poorly drained Bibb and Trebloc soils in sloughs and depressional areas
• The well drained Jena and moderately well drained Kirkville soils on the higher parts of natural levees
• Stough soils, which have less clay in the subsoil than the Mantachie soil; on the slightly higher knolls and remnants of terraces

Similar soils
• Scattered areas of Mantachie soils that have a surface layer of loam or fine sandy loam

Land Use

Dominant uses: Woodland
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Poorly suited
Commonly grown crops: Corn, grain sorghum, and soybeans
Management concerns: Wetness and flooding
Management measures and considerations:
• This map unit is severely limited for crop production because of the flooding and wetness.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Suited to pasture; poorly suited to hayland
Commonly grown crops: Bahiagrass, common bermudagrass, and white clover
Management concerns: Flooding and wetness
Management measures and considerations:
• Although most of the flooding occurs during winter and spring, livestock and hay may be damaged during any time of the year.
• Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Figure 4.—An area of Mantachie silt loam, frequently flooded. This map unit is suited to bottomland hardwood timber. It provides habitat for many species of woodland wildlife and wetland wildlife.

Woodland

Suitability: Suited
Productivity class: Very high for loblolly pine and hardwoods
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:

- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
- Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
- Planting seedlings on raised beds helps to establish the seedlings and increases the seedling survival rate.
- Site preparation practices, such as applying herbicides and chopping, help to control competition from unwanted plants.
- Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat

Potential to support habitat for: Openland wildlife and wetland wildlife—fair; woodland wildlife—good
Management concerns: Flooding and wetness (fig. 4)
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and

pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding and wetness.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding and wetness.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Constructing roads on well-compacted fill material elevates the road above the expected level of flooding and helps to overcome the wetness.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface drainage system may be needed in some areas.

Interpretive Groups

Land capability classification: Vw
Woodland ordination symbol: 10W for loblolly pine

MgC—Maytag silty clay, 1 to 8 percent slopes

Setting

Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Shape of areas: Irregular
Size of areas: 5 to 40 acres

Composition

Maytag and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown silty clay

Subsurface layer:
6 to 11 inches—mixed dark grayish brown and light olive brown silty clay

Subsoil:
11 to 17 inches—light olive brown clay that has large slickensides and has nodules of calcium carbonate
17 to 34 inches—light yellowish brown clay and silty clay having large slickensides and having nodules of calcium carbonate
34 to 52 inches—pale yellow clay that has large slickensides and has nodules of calcium carbonate
52 to 68 inches—mottled pale yellow, brownish yellow, and strong brown clay that has large slickensides and many nodules of calcium carbonate

Substratum:
68 to 82 inches—light brownish gray clay that has platy rock structure

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Medium
Tilth: Poor

Minor Components

Dissimilar soils

- Ichusa soils, which are acid in the upper part of the subsoil, on the lower parts of slopes
- The somewhat poorly drained Leeper soils on narrow flood plains

Similar soils

- Scattered areas of soils that have a thick, dark-colored surface layer
- Scattered areas of alkaline soils that have chalk bedrock at a depth of 40 to 60 inches

Land Use

Dominant uses: Pasture, hayland, and cropland
Other uses: Woodland and wildlife habitat

Cropland

Suitability: Suited
Commonly grown crops: Corn, soybeans, grain sorghum, and truck crops
Management concerns: Erodibility, tilth, and equipment use
Management measures and considerations:

- Using a resource management system that includes contour farming, conservation tillage, crop residue management, stripcropping, and a sod-based rotation reduces the hazard of erosion, helps to control surface runoff, and increases the rate of water infiltration.
- Restricting field work to dry periods minimizes the rutting and compaction caused by the high content of clay in the soil.
- Tilling when the soil has the proper moisture content helps to prevent clodding and crusting.

Pasture and hayland

Suitability: Well suited
Commonly grown crops: Tall fescue, dallisgrass, Johnsongrass, bahiagrass, and clover
Management concerns: Erodibility and equipment use
Management measures and considerations:

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Restricting field work to dry periods helps to prevent the rutting and compaction of the surface layer caused by the high content of clay in the soil.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.

Woodland

Suitability: Suited to eastern redcedar; unsuited to loblolly pine
Productivity class: Moderate for eastern redcedar
Management concerns: Equipment use and seedling survival
Management measures and considerations:

- This map unit is unsuited to pine production because the soils are too alkaline.
- Planting appropriate species as recommended by a forester helps to maximum productivity and to ensure seedling survival.
- Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
- Installing broad base dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding disturbed areas with adapted grasses and legumes helps to control erosion and the siltation of streams.

Wildlife habitat

Potential to support habitat for: Openland wildlife and woodland wildlife—fair; wetland wildlife—very poor
Management concerns: Equipment use and erodibility
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings

Suitability: Poorly suited
Management concerns: Shrink-swell
Management measures and considerations:

- Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields

Suitability: Unsuited
Management concerns: Restricted permeability
Management measures and considerations:

- This map unit is severely limited as a site for septic tank absorption fields because of the very slow permeability.
- The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength, shrink-swell, and cutbanks cave
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.
• Designing roads to incorporate structures that remove excess water improves the stability of the cutbanks, which are subject to slumping.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Erodibility and tilth
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Because of compaction, heavy equipment should not be used in areas that are to be landscaped.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 3C for eastern redcedar

OrB—Ora fine sandy loam, 2 to 5 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Narrow summits, shoulder slopes, and side slopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres

Composition

Ora and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—dark brown fine sandy loam

Subsurface layer:
2 to 7 inches—yellowish brown fine sandy loam

Subsoil:
7 to 15 inches—yellowish red clay loam
15 to 25 inches—yellowish red loam
25 to 66 inches—yellowish red sandy loam fragipan that has reddish, grayish, and brownish mottles
66 to 84 inches—yellowish red sandy clay loam that has brownish mottles

Soil Properties and Qualities

Potential rooting depth: 20 to 40 inches
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: Perched, at a depth of 2 to $3^{1}/_{2}$ feet from January through April
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Moderate
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• Ruston soils, which do not have a fragipan, on the slightly higher knolls
• The clayey Sweatman soils in saddles and on the lower parts of slopes
• Smithdale soils, which do not have a fragipan, on the lower parts of slopes

Similar soils
• Scattered areas of loamy soils that have a brownish fragipan

Land Use

Dominant uses: Pasture, hayland, and cropland
Other uses: Woodland and homesites

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, soybeans, corn, grain sorghum, and vegetables
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
• Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
• Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited

Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility, wetness, and root penetration
Management measures and considerations:
• Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
• Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
• Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Erodibility
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Installing a subsurface drainage system helps to lower the seasonal high water table.
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Wetness and low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and root penetration
Management measures and considerations:
• Because of the restricted rooting depth, establishing and maintaining lawns and landscaping are difficult, especially if the soil has been significantly disturbed by construction.
• Applying supplemental irrigation and seeding or planting varieties that are adapted to droughty conditions increase the survival rate of grasses and landscaping plants.
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A for loblolly pine

OrC—Ora fine sandy loam, 5 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 225 acres

Composition

Ora and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—dark brown fine sandy loam

Subsurface layer:
2 to 7 inches—yellowish brown fine sandy loam

Subsoil:
7 to 15 inches—yellowish red clay loam
15 to 25 inches—yellowish red loam
25 to 66 inches—yellowish red sandy loam fragipan that has reddish, grayish, and brownish mottles
66 to 84 inches—yellowish red sandy clay loam that has brownish mottles

Soil Properties and Qualities

Potential rooting depth: 20 to 40 inches
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: Perched, at a depth of 2 to $3^1/_2$ feet from January through April
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
- Ruston soils, which do not have a fragipan, on convex knolls and the upper parts of slopes
- The clayey Sweatman soils in saddles and on the lower parts of slopes
- Smithdale soils, which do not have a fragipan, on the lower parts of slopes
- The poorly drained Bibb soils on narrow flood plains

Similar soils
- Scattered areas of loamy soils that have a brownish fragipan

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland and homesites

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, corn, grain sorghum, and truck crops
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited to pasture; suited to hayland
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor

Management concerns: Erodibility
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Installing a subsurface drainage system helps to lower the seasonal high water table.
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Wetness and low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and root penetration
Management measures and considerations:
• Because of the restricted rooting depth, establishing and maintaining lawns and landscaping are difficult, especially if the soil has been significantly disturbed by construction.
• Applying supplemental irrigation and seeding or planting varieties that are adapted to droughty conditions increase the survival rate of grasses and landscaping plants.
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9A for loblolly pine

Pa—Pits-Udorthents complex

Setting

Landscape: Coastal Plain uplands
Landform: Ridges, hillslopes, and terraces
Landform position: Summits, shoulder slopes, side slopes, and interfluves
Shape of areas: Rectangular or horseshoe shaped
Size of areas: 4 to 350 acres

Composition

Pits: 50 percent
Udorthents: 45 percent
Dissimilar soils: 5 percent

This map unit consists of open excavations from which the original soil and underlying material have been removed for use at another location. Typically, the remaining material consists of strata and piles of sand, gravel, stone, and mixed earthy materials. Most areas are severely eroded and have many gullies. Vegetation is generally sparse and of low quality (fig. 5).

Soil Properties and Qualities

Potential rooting depth: Variable
Drainage class: Variable
Permeability: Variable
Available water capacity: Variable

Figure 5.—An abandoned pit in an area of Pits-Udorthents complex. Pits such as this one are severely eroded and contribute to the sediment load of local streams.

Depth to seasonal high water table: Variable
Shrink-swell potential: Variable
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Very low
Tilth: Poor
Other distinctive properties: Discontinuous layers, streaks, or pockets of variable textures

Minor Components

Dissimilar soils

- Boswell, Heidel, Smithdale, Ruston, Ora, and Sweatman soils at the edges of mapped areas on uplands
- Alaga, Cahaba, Prentiss, and Savannah soils at the edges of mapped areas on terraces
- Small areas of soils in depressions that are intermittently ponded

Land Use

Dominant uses: Source of sand, gravel, clay, lime, or fill material
Other uses: Unsuited to most other uses

Extensive reclamation efforts are required to make areas suitable for use as cropland, pasture, hayland, woodland, or homesites or for wildlife habitat. Onsite investigation and testing are needed to determine suitability for any use.

Interpretive Groups

Land capability classification: VIIIs
Woodland ordination symbol: None assigned

PrA—Prentiss fine sandy loam, 0 to 2 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: High stream terraces
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 100 acres

Composition

Prentiss and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

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

Subsoil:
8 to 15 inches—yellowish brown loam
15 to 20 inches—yellowish brown loam that has brownish mottles
20 to 49 inches—yellowish brown sandy loam fragipan that has mottles in shades of red and gray
49 to 61 inches—light yellowish brown sandy loam fragipan that has mottles in shades of gray and brown
61 to 81 inches—light brownish gray sandy loam fragipan that has mottles in shades of red, gray, and brown

Soil Properties and Qualities

Potential rooting depth: 20 to 32 inches
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow in the fragipan
Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 2 to $2^1/_2$ feet from January through April
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: A root-restricting fragipan within a depth of 20 to 32 inches

Minor Components

Dissimilar soils
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- Prentiss soils that have slopes of more than 2 percent
- The somewhat poorly drained Quitman and Stough soils in the slightly lower, more concave positions
- The well drained Smithdale and Ruston soils, which do not have a fragipan, on the slightly higher knolls

Similar soils
- Scattered areas of loamy soils that have more clay in the subsoil than the Prentiss soil

Land Use

Dominant uses: Pasture, hayland, and cropland
Other uses: Woodland

Cropland
Suitability: Well suited
Commonly grown crops: Corn, soybeans, grain sorghum, and vegetables
Management concerns: Wetness, root penetration, and droughtiness
Management measures and considerations:
- A well maintained drainage system minimizes wetness and improves productivity.
- Deep subsoiling helps to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying supplemental irrigation and planting crop varieties that are adapted to droughty conditions increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Wetness, root penetration, and droughtiness
Management measures and considerations:
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying supplemental irrigation and seeding plant varieties that are adapted to droughty conditions increase productivity.
- During the establishment, maintenance, or renovation of pasture and hayland, applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: High for loblolly pine

Management concerns: Competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: No significant limitations affect management of wildlife habitat.
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Installing a subsurface drainage system helps to lower the seasonal high water table.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.

Lawns and landscaping
Suitability: Suited
Management concerns: Droughtiness
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Applying supplemental irrigation and seeding or planting varieties that are adapted to droughty conditions increase the survival rate of grasses and landscaping plants.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9A for loblolly pine

QuA—Quitman fine sandy loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Slightly concave slopes
Shape of areas: Long and narrow
Size of areas: 5 to 350 acres

Composition

Quitman and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 4 inches—dark gray fine sandy loam

Subsurface layer:
4 to 6 inches—light brownish gray fine sandy loam

Subsoil:
6 to 14 inches—light yellowish brown loam that has mottles in shades of gray and brown
14 to 44 inches—pale brown and light brownish gray loam that has mottles in shades of gray and brown
44 to 55 inches—grayish brown loam that has mottles in shades of gray and brown
55 to 80 inches—gray loam that has mottles in shades of brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Moderately slow

Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 1 1/2 to 2 feet from December through April
Shrink-swell potential: Low
Frequency of flooding: Occasional
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils

- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The moderately well drained Prentiss and Savannah soils, which have a fragipan, on the slightly higher knolls

Similar soils

- Scattered areas of somewhat poorly drained soils that have less clay in the subsoil than the Quitman soil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, grain sorghum, and vegetables
Management concerns: Wetness and flooding
Management measures and considerations:

- Managing this map unit for crop production is difficult because of the hazard of flooding during the growing season.
- Using well maintained drainageways and ditches to remove excess water improves productivity.
- Delaying spring planting minimizes the clodding and rutting that occurs if equipment is used when the soil is wet.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Bahiagrass, coastal bermudagrass, and white clover
Management concerns: Wetness and flooding
Management measures and considerations:

- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
- An artificial drainage system may be needed in some areas.
- Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:

- Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and compaction.
- Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: Flooding and wetness
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers (fig. 6).

Dwellings
Suitability: Unsuited
Management concerns: Flooding and wetness

- This map unit is severely limited as a site for dwellings because of the flooding and wetness.
- A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding, wetness, and restricted permeability
Management measures and considerations:

- This map unit is severely limited as a site for

Figure 6.—A small pond in an area of Quitman fine sandy loam, 0 to 2 percent slopes, occasionally flooded. Such ponds provide water for use by livestock, habitat for fish and wildlife, and recreational opportunities for land users.

septic tank absorption fields because of the flooding, wetness, and restricted permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding, wetness, and low strength
Management measures and considerations:
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness and elevates roads above the flooding.
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Wetness and flooding
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface or subsurface drainage system may be needed in some areas.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 10W for loblolly pine

RuA—Ruston fine sandy loam, 0 to 2 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits of broad ridges
Shape of areas: Irregular
Size of areas: 5 to 30 acres

Composition

Ruston and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown fine sandy loam

Subsoil:
6 to 20 inches—yellowish red clay loam
20 to 28 inches—yellowish red loam
28 to 45 inches—yellowish red fine sandy loam and streaks of light yellowish brown fine sandy loam

45 to 81 inches—red loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
- The moderately well drained Ora and Savannah soils, which have a fragipan, in the slightly lower positions
- Poorly drained, loamy soils in shallow depressions
- Ruston soils that have slopes of more than 2 percent

Similar soils
- Scattered areas of well drained, loamy soils that have less clay in the subsoil than the Ruston soil
- Scattered areas of well drained, loamy soils that are dark red throughout the subsoil

Land Use

Dominant uses: Cropland, pasture, and hayland
Other uses: Woodland

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: No significant limitations affect management of cropland.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass (fig. 7)
Management concerns: No significant limitations affect management of pasture and hayland.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: No significant limitations affect management of woodland.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: No significant limitations affect management of wildlife habitat.
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Well suited
Management concerns: No significant limitations affect dwellings.

Septic tank absorption fields
Suitability: Suited
Management concerns: Restricted permeability
Management measures and considerations:
- Increasing the size of the absorption field improves system performance.
- Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.

Local roads and streets
Suitability: Well suited
Management concerns: No significant limitations affect local roads and streets.

Lawns and landscaping
Suitability: Well suited
Management concerns: No significant limitations affect lawns and landscaping.

Interpretive Groups

Land capability classification: I
Woodland ordination symbol: 9A for loblolly pine

RuB—Ruston fine sandy loam, 2 to 5 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Shoulder slopes, side slopes, and narrow summits

Figure 7.—An area of Ruston fine sandy loam, 0 to 2 percent slopes. This soil is well suited to hayland and is capable of producing high yields of coastal bermudagrass.

Shape of areas: Irregular
Size of areas: 5 to 300 acres

Composition

Ruston and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown fine sandy loam

Subsoil:
6 to 20 inches—yellowish red clay loam
20 to 28 inches—yellowish red loam
28 to 45 inches—yellowish red fine sandy loam and streaks of light yellowish brown fine sandy loam
45 to 81 inches—red loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Moderate
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils

- The moderately well drained Ora and Savannah

soils, which have a fragipan, on the lower, flatter parts of slopes
• Ruston soils that have slopes of less than 2 percent or more than 5 percent
• The clayey Sweatman soil on the lower parts of slopes

Similar soils
• Scattered areas of well drained, loamy soils that have less clay in the lower part of the subsoil than the Ruston soil
• Scattered areas of well drained, loamy soils that are dark red throughout the subsoil

Land Use

Dominant uses: Cropland, pasture, and hayland
Other uses: Woodland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: Erodibility
Management measures and considerations:
• Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility
Management measures and considerations:
• Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: No significant limitations affect management of woodland.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and fertility
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Well suited
Management concerns: No significant limitations affect dwellings.

Septic tank absorption fields
Suitability: Suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.

Local roads and streets
Suitability: Well suited
Management concerns: No significant limitations affect local roads and streets.

Lawns and landscaping
Suitability: Well suited
Management concerns: No significant limitations affect lawns and landscaping.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A for loblolly pine

RuC—Ruston fine sandy loam, 5 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes and shoulder slopes
Shape of areas: Irregular
Size of areas: 5 to 250 acres

Composition

Ruston and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown fine sandy loam

Subsoil:
6 to 20 inches—yellowish red clay loam
20 to 28 inches—yellowish red loam
28 to 45 inches—yellowish red fine sandy loam and streaks of light yellowish brown fine sandy loam
45 to 81 inches—red loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- Scattered areas of Heidel soils, which have less clay in the upper part of the subsoil than the Ruston soil
- The moderately well drained Ora soils, which have a fragipan, on the flatter parts of slopes
- Ruston soils that have slopes of less than 5 percent or more than 8 percent
- The clayey Sweatman soil on the lower parts of slopes

Similar soils
- Scattered areas of well drained, loamy soils that have less clay in the lower part of the subsoil than the Ruston soil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: Erodibility
Management measures and considerations:
- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil conserving crops reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: No significant limitations affect management of woodland.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and fertility
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Well suited

Management concerns: No significant limitations affect dwellings.
Management measures and considerations:
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field and placing the distribution lines on the contour improve system performance.

Local roads and streets
Suitability: Well suited
Management concerns: No significant limitations affect local roads and streets.
Management measures and considerations:
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9A for loblolly pine

SaA—Savannah fine sandy loam, 0 to 2 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: High terraces and ridges
Landform position: Summits
Shape of areas: Irregular
Size of areas: 5 to 175 acres

Composition

Savannah and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

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

Subsurface layer:
8 to 12 inches—pale brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam
18 to 35 inches—yellowish brown loam fragipan that has mottles in shades of gray and brown
35 to 47 inches—yellowish brown loam fragipan that has mottles in shades of red, gray, and brown
47 to 72 inches—clay loam fragipan that is mottled in shades of gray, red, yellow, and brown
72 to 83 inches—mottled light brownish gray, strong brown, and light red clay loam

Soil Properties and Qualities

Potential rooting depth: 18 to 30 inches
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow in the fragipan
Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: A root-restricting fragipan within a depth of 18 to 30 inches

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The somewhat poorly drained Quitman soils in the slightly lower, less convex positions
• The well drained Ruston soils, which do not have a fragipan, on the slightly higher knolls
• Savannah soils that have slopes of more than 2 percent

Similar soils
• Scattered areas of soils that have a fragipan and that have less clay in the subsoil than the Savannah soil
• Scattered areas of soils that have a fragipan and that are reddish in the upper part of the subsoil

Land Use

Dominant uses: Pasture, hayland, and cropland
Other uses: Woodland

Cropland
Suitability: Well suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: Wetness and root penetration
Management measures and considerations:
• A well maintained drainage system minimizes wetness and improves productivity.
• Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Wetness and root penetration
Management measures and considerations:
• Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
• Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: No significant limitations affect management of wildlife habitat.
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Installing a subsurface drainage system helps to lower the seasonal high water table.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength, wetness
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.

Lawns and landscaping
Suitability: Well suited
Management concerns: Wetness
Management measures and considerations:
• A surface or subsurface drainage system may be needed in some areas.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9W for loblolly pine

SaB—Savannah fine sandy loam, 2 to 5 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: High terraces and ridges

Landform position: Side slopes and shoulder slopes
Shape of areas: Irregular
Size of areas: 5 to 250 acres

Composition

Savannah and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

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

Subsurface layer:
8 to 12 inches—pale brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam
18 to 35 inches—yellowish brown loam fragipan that has mottles in shades of gray and brown
35 to 47 inches—yellowish brown loam fragipan that has mottles in shades of red, gray, and brown
47 to 72 inches—clay loam fragipan that is mottled in shades of gray, red, yellow, and brown
72 to 83 inches—mottled light brownish gray, strong brown, and light red clay loam

Soil Properties and Qualities

Potential rooting depth: 18 to 30 inches
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow in the fragipan
Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: A root-restricting fragipan within a depth of 18 to 30 inches

Minor Components

Dissimilar soils
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The somewhat poorly drained Quitman soils in the slightly lower, less convex positions around heads of drains
- The well drained Ruston and Smithdale soils, which do not have a fragipan, on shoulder slopes and narrow ridges
- Savannah soils that have slopes of less than 2 percent or more than 5 percent

Similar soils
- Scattered areas of soils that have a fragipan and that have less clay in the subsoil than the Savannah soil
- Scattered areas of soils that have a fragipan and that are reddish in the upper part of the subsoil

Land Use

Dominant uses: Pasture, hayland, and cropland
Other uses: Woodland

Cropland
Suitability: Well suited
Commonly grown crops: Corn, cotton, soybeans, watermelons, and vegetables
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Management concerns: No significant limitations affect management of wildlife habitat.
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness
Management measures and considerations:
• Installing a subsurface drainage system helps to lower the seasonal high water table.
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table and increasing the size of the field improve system performance.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength, wetness
Management measures and considerations:
• Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads to conform to the natural slope improve soil performance.
• Constructing roads on raised, well-compacted fill material helps to overcome the wetness.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and droughtiness
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9W for loblolly pine

SaC—Savannah fine sandy loam, 5 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: High terraces and ridges
Landform position: Side slopes, shoulder slopes, and summits of narrow ridges
Shape of areas: Irregular
Size of areas: 5 to 175 acres

Composition

Savannah and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

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

Subsurface layer:
8 to 12 inches—pale brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam
18 to 35 inches—yellowish brown loam fragipan that has mottles in shades of gray and brown
35 to 47 inches—yellowish brown loam fragipan that has mottles in shades of red, gray, and brown
47 to 72 inches—clay loam fragipan that is mottled in shades of gray, red, yellow, and brown
72 to 83 inches—mottled light brownish gray, strong brown, and light red clay loam

Soil Properties and Qualities

Potential rooting depth: 18 to 30 inches
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the subsoil and moderately slow in the fragipan
Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through April

Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good
Other distinctive properties: A root-restricting fragipan within a depth of 18 to 30 inches

Minor Components

Dissimilar soils
- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The well drained Ruston and Smithdale soils, which do not have a fragipan, on narrow ridges and on shoulder slopes
- Savannah soils that have slopes of less than 5 percent or more than 8 percent
- The clayey Sweatman soils on the lower parts of slopes

Similar soils
- Scattered areas of soils that have a fragipan and that are reddish in the upper part of the subsoil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Cotton, soybeans, corn, watermelons, and vegetables
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility, droughtiness, and root penetration
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
- Establishing a permanent plant cover on roads and landings after the completion of logging helps to control erosion and the siltation of streams.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility
Management measures and considerations:
- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Wetness and erodibility
Management measures and considerations:
- Installing a subsurface drainage system helps to lower the seasonal high water table.
- Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited

Management concerns: Wetness and restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table, increasing the size of the field, and placing the distribution lines on the contour improve system performance.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength, wetness
Management measures and considerations:
• Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads to conform to the natural slope improve soil performance.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and droughtiness
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9W for loblolly pine

SB—Savannah-Boswell complex, 2 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Savannah—summits of narrow ridges; Boswell—side slopes and saddles
Shape of areas: Irregular
Size of areas: 30 to 300 acres

Composition

Savannah and similar soils: 50 percent
Boswell and similar soils: 35 percent
Dissimilar soils: 15 percent

Typical Profile

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

Subsurface layer:
8 to 12 inches—pale brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam
18 to 35 inches—yellowish brown loam fragipan that has mottles in shades of gray and brown
35 to 47 inches—yellowish brown loam fragipan that has mottles in shades of red, gray, and brown
47 to 72 inches—clay loam fragipan that is mottled in shades of gray, red, yellow, and brown
72 to 83 inches—mottled light brownish gray, strong brown, and light red clay loam

Boswell
Surface layer:
0 to 2 inches—dark grayish brown loam

Subsoil:
2 to 15 inches—yellowish red and red clay
15 to 28 inches—red clay that has brownish and grayish mottles
28 to 50 inches—light brownish gray clay that has mottles in shades of red and brown
50 to 73 inches—red and yellowish red clay that has mottles in shades of gray and brown
73 to 77 inches—light brownish gray clay that has mottles in shades of red and brown

Substratum:
77 to 93 inches—light gray clay that has mottles in shades of red, yellow, gray, and brown

Soil Properties and Qualities

Potential rooting depth: Savannah—18 to 30 inches; Boswell—more than 60 inches
Drainage class: Moderately well drained
Permeability: Savannah—moderate in the upper part of the subsoil and moderately slow in the fragipan; Boswell—very slow
Available water capacity: Savannah—moderate; Boswell—high
Seasonal high water table: Savannah—perched, at a depth of 1½ to 3 feet from January through April; Boswell—at a depth of more than 6 feet
Shrink-swell potential: Savannah—low; Boswell—high
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Savannah—good; Boswell—poor
Other distinctive properties: Savannah—a root-

restricting fragipan within a depth of 18 to 30 inches; Boswell—intersecting slickensides in the lower part of the subsoil

Minor Components

Dissimilar soils

- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The loamy Freest soils, which do not have a fragipan, in positions similar to those of the Savannah soils
- Savannah and Boswell soils that have slopes of more than 8 percent
- The loamy, well drained Smithdale soils, which do not have a fragipan, on the upper parts of slopes

Similar soils

- Scattered areas of soils that have a fragipan and that are reddish in the upper part of the subsoil

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Cropland and pasture

Cropland

Suitability: Suited
Commonly grown crops: Corn, cotton, soybeans, and grain sorghum
Management concerns: Erodibility and tilth
Management measures and considerations:

- Terraces and diversions, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
- Chisel plowing and subsoiling help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland

Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and droughtiness
Management measures and considerations:

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.
- Chisel plowing and subsoiling when seedbeds are prepared help to break through hardpans, increasing root penetration and the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland

Suitability: Well suited
Productivity class: Savannah—very high for loblolly pine; Boswell—moderately high for loblolly pine
Management concerns: Savannah—competition from undesirable plants; Boswell—equipment use
Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
- Unsurfaced roads may be impassable during wet periods in areas of the Boswell soil because of the high content of clay in the soil.
- Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
- Establishing a permanent plant cover on roads and landings after the completion of logging helps to control erosion and the siltation of streams.

Wildlife habitat

Potential of the Savannah soil to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—poor
Potential of the Boswell soil to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings

Suitability: Savannah—suited; Boswell—poorly suited
Management concerns: Savannah—wetness; Boswell—shrink-swell
Management measures and considerations:

- Installing a subsurface drainage system in areas of the Savannah soil helps to lower the seasonal high water table.

• Reinforcing foundations and footings or backfilling with coarse-textured material in areas of the Boswell soil helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Savannah—wetness and restricted permeability; Boswell—restricted permeability
Management measures and considerations:
• Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table in areas of the Savannah soil and increasing the size of the field improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Savannah—suited; Boswell—poorly suited
Management concerns: Savannah—low strength, wetness; Boswell—low strength, shrink-swell
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance in areas of the Boswell soil.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Savannah—erodibility and droughtiness; Boswell—erodibility and tilth
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: Savannah—IIIe; Boswell—IVe
Woodland ordination symbol: Savannah—9W for loblolly pine; Boswell—8C for loblolly pine

SdD—Smithdale fine sandy loam, 8 to 15 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 450 acres

Composition

Smithdale and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown fine sandy loam

Subsurface layer:
5 to 10 inches—yellowish brown sandy loam

Subsoil:
10 to 23 inches—red sandy clay loam
23 to 40 inches—red loam
40 to 64 inches—red sandy loam that has brownish mottles
64 to 84 inches—red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The moderately well drained Ora and Savannah soils, which have a fragipan, on summits of narrow ridges
• Smithdale soils that have slopes of less than 8 percent or more than 15 percent
• The clayey Sweatman soils on the lower parts of slopes

Similar soils
• Scattered areas of reddish or brownish soils that have less clay in the subsoil then the Smithdale soil

Land Use

Dominant uses: Woodland and pasture
Other uses: Cropland

Cropland
Suitability: Poorly suited
Commonly grown crops: Corn, watermelon, and small grains
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil conserving crops reduce the hazard of erosion, help to control surface runoff, and increase the rate of water infiltration.
• Cultivation should be restricted to the less sloping areas.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited to pasture; suited to hayland
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and equipment use
Management measures and considerations:
• The slope may limit equipment use in the steeper areas when hay is harvested.
• Fencing livestock away from creeks and streams helps to prevent streambank erosion and sedimentation.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: No significant limitations affect management of woodland.
Management measures and considerations:
• Planting recommended tree species immediately after harvest and using site preparation practices, such as chopping, burning, and applying herbicides, help to reduce the hazard of erosion and siltation of streams. The soil should be disturbed as little as possible.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Slope
Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.

Septic tank absorption fields
Suitability: Suited
Management concerns: Slope
Management measures and considerations:
• Installing the distribution lines on the contour improves system performance.

Local roads and streets
Suitability: Suited
Management concerns: Slope
Management measures and considerations:
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Slope and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural

contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 9A for loblolly pine

SdF—Smithdale fine sandy loam, 15 to 35 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 450 acres

Composition

Smithdale and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown fine sandy loam

Subsurface layer:
5 to 10 inches—yellowish brown sandy loam

Subsoil:
10 to 23 inches—red sandy clay loam
23 to 40 inches—red loam
40 to 64 inches—red sandy loam that has brownish mottles
64 to 84 inches—red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The moderately well drained Ora and Savannah soils, which have a fragipan, on the summits of narrow ridges
• Smithdale soils that have slopes of less than 15 percent or more than 35 percent
• The clayey Sweatman soils on the lower parts of slopes

Similar soils
• Scattered areas of reddish or brownish soils that have less clay in the subsoil than the Smithdale soil
• Scattered areas of Smithdale soils that have a surface layer of loamy sand or loamy fine sand

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland
Suitability: Unsuited
Management concerns: Slope
Management measures and considerations:
• This map unit is severely limited for crop production because of the slope.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Equipment use and erodibility
Management measures and considerations:
• The slope may limit equipment use in the steeper areas.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Productivity class: Very high for loblolly pine
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Installing broad base dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
• Reseeding disturbed areas with adapted grasses and legumes helps to control erosion and the siltation of streams.
• Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitations.
• Leaving a buffer zone of trees and shrubs adjacent to streams helps to control siltation and provides

shade for the surface of the water, thereby improving aquatic habitat.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Installing the distribution lines on the contour improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Slope and erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 9R for loblolly pine

SR—Smithdale-Rock outcrop complex, 8 to 40 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Smithdale—summits of narrow ridges and side slopes; Rock outcrop—crests, nose slopes, and shoulder slopes
Shape of areas: Irregular
Size of areas: 20 to 200 acres

Composition

Smithdale and similar soils: 65 percent
Rock outcrop and similar areas: 20 percent
Dissimilar soils: 15 percent

Typical Profile

Smithdale
Surface layer:
0 to 5 inches—dark grayish brown fine sandy loam

Subsurface layer:
5 to 10 inches—yellowish brown sandy loam

Subsoil:
10 to 23 inches—red sandy clay loam
23 to 40 inches—red loam
40 to 64 inches—red sandy loam that has brownish mottles
64 to 84 inches—red sandy loam

Rock outcrop

This miscellaneous land type consists of hard sandstone bedrock.

Soil Properties and Qualities

Smithdale
Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Good
Depth to bedrock: More than 80 inches

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The clayey Sweatman soils on the lower parts of slopes
• Shallow and moderately deep, loamy, sandy, or clayey soils adjacent to sandstone outcrops
• Scattered areas of somewhat excessively drained, sandy soils
• Smithdale soils that have slopes of less than 8 percent

Similar soils
• Scattered areas of reddish or brownish soils that have less clay in the subsoil than the Smithdale soil
• Scattered areas of Smithdale soils that have a surface layer of loamy sand or loamy fine sand

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland
Suitability: Unsuited
Management concerns: Slope and rock outcrops
• This map unit is severely limited for crop production because of the slope and the scattered areas of rock outcrop.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Managing this map unit for pasture and hayland is difficult because of the areas of rock outcrop and the complex slopes.
• The slope and surface stoniness may limit equipment use when hay is harvested or the pasture is maintained. Removing stones or limiting equipment use to the less stony areas increases productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Productivity class: Smithdale—very high for loblolly pine
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Installing broad base dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
• Reseeding disturbed areas with adapted grasses and legumes helps to control erosion and the siltation of streams.
• The large extent of rock outcrop affects the construction of roads and trails. Cable logging methods help to overcome the limitations caused by the rock outcrop.
• Construction of roads and skid trails should be on the contour where possible.

Wildlife habitat
Potential of the Smithdale soil to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Large stones and areas of rock outcrop may be encountered during excavation.
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction

minimizes the damage caused by surface flow of water and reduces the hazard of erosion.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Slope and depth to rock
Management measures and considerations:
• Large stones and areas of rock outcrop may be encountered during excavation.
• Installing septic tank absorption fields in areas of the Smithdale soil improves system performance.
• Installing the distribution lines on the contour improves system performance.
• Seeps and springs may be encountered in some areas during excavation of trenches. Such areas should not be selected as sites for septic tank absorption fields.

Local roads and streets
Suitability: Poorly suited
Management concerns: Slope and depth to rock
Management measures and considerations:
• Large stones and areas of rock outcrop may be encountered during excavation. Heavy equipment may be needed for road construction in the areas of rock outcrop.
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Slope, erodibility, and depth to rock
Management measures and considerations:
• Because of the restricted rooting depth near areas of rock outcrop, establishing and maintaining lawns and landscape plants is difficult, especially if the soil has been significantly disturbed by construction. Where possible, areas of the Smithdale soil should be selected.
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: Smithdale—VIIe; Rock outcrop—VIIIs
Woodland ordination symbol: Smithdale—9R for loblolly pine; Rock outcrop—not rated

St—Stough fine sandy loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Flat to slightly concave slopes
Shape of areas: Oblong
Size of areas: 5 to 350 acres

Composition

Stough and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

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

Subsurface layer:
3 to 6 inches—light brownish gray fine sandy loam

Subsoil:
6 to 23 inches—light yellowish brown fine sandy loam that has mottles in shades of gray and brown
23 to 35 inches—yellowish brown sandy loam that has mottles in shades of gray and brown
35 to 50 inches—light brownish gray loam that has mottles in shades of brown
50 to 62 inches—light gray sandy clay loam that has mottles in shades of brown
62 to 69 inches—light yellowish brown sandy clay loam that has mottles in shades of gray and brown
69 to 80 inches—gray clay loam that has mottles in shades of gray and brown

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: Perched, at a depth of 1 to $1^1/_2$ feet from January through April
Shrink-swell potential: Low
Frequency of flooding: Occasional
Hazard of erosion: Slight
Content of organic matter in the surface layer: Low
Tilth: Good

Minor Components

Dissimilar soils
• The poorly drained Bibb soils on narrow flood plains
• The poorly drained Trebloc soils in shallow sloughs and drainageways

• The moderately well drained Prentiss soils, which have a fragipan, in the slightly higher, more convex positions

Similar soils
• Scattered areas of somewhat poorly drained soils that have more clay in the subsoil than the Stough soil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn, cotton, soybeans, grain sorghum, and vegetables
Management concerns: Wetness and flooding
Management measures and considerations:
• Managing this map unit for crop production is difficult because of the hazard of flooding during the growing season.
• Harvesting row crops as soon as possible reduces the risk of damage from the flooding.
• Using open ditches and diversions to remove excess water improves productivity.
• Delaying spring planting minimizes the clodding and rutting that occurs if equipment is used when the soil is wet.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Wetness and flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
• Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and compaction.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—fair
Management concerns: Flooding, wetness, and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding, wetness, and restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding, wetness, and restricted permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding

Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.

Lawns and landscaping
Suitability: Suited
Management concerns: Wetness, flooding, and droughtiness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface or subsurface drainage system and protection from the flooding are needed in most areas.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9W for loblolly pine

SwB—Sweatman fine sandy loam, 2 to 5 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Shape of areas: Irregular
Size of areas: 5 to 275 acres

Composition

Sweatman and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

Surface layer:
0 to 4 inches—dark brown fine sandy loam

Subsoil:
4 to 27 inches—red clay that has brownish mottles in the lower part
27 to 49 inches—mottled light brownish gray, red, and light olive brown clay

Substratum:
49 to 55 inches—yellowish red sandy loam and few fragments of grayish clayey shale
55 to 74 inches—thinly stratified reddish, brownish, and grayish loamy sand
74 to 85 inches—thinly stratified grayish clayey shale, strong brown sandy loam, and red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Frequency of flooding: None
Hazard of erosion: Moderate
Content of organic matter in the surface layer: Low
Tilth: Fair

Minor Components

Dissimilar soils
• The loamy Ora soils, which have a fragipan, in the slightly higher positions
• The loamy Ruston and Smithdale soils on small knolls
• Sweatman soils that have slopes of less than 2 percent or more than 5 percent

Similar soils
• Scattered areas of moderately well drained, clayey soils that have more clay in the lower part of the subsoil than the Sweatman soil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn, cotton, soybeans, small grains, and vegetables
Management concerns: Erodibility
Management measures and considerations:
• Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility
Management measures and considerations:
• Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
• Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
• Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Shrink-swell
Management measures and considerations:
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
• Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.

Lawns and landscaping
Suitability: Well suited
Management concerns: Erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9C for loblolly pine

SwC—Sweatman fine sandy loam, 5 to 8 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 300 acres

Composition

Sweatman and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—dark brown fine sandy loam

Subsoil:
4 to 27 inches—red clay that has brownish mottles in the lower part
27 to 49 inches—mottled light brownish gray, red, and light olive brown clay

Substratum:
49 to 55 inches—yellowish red sandy loam and few fragments of grayish clayey shale
55 to 74 inches—thinly stratified reddish, brownish, and grayish loamy sand
74 to 85 inches—thinly stratified grayish clayey shale, strong brown sandy loam, and red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Fair

Minor Components

Dissimilar soils

- The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
- The loamy Ora soils, which have a fragipan, on narrow ridges and on shoulder slopes
- The loamy Ruston soils on narrow ridges
- The loamy Smithdale soils in positions similar to those of the Sweatman soil
- Sweatman soils that have slopes of less than 5 percent or more than 8 percent

Similar soils

- Scattered areas of moderately well drained, clayey soils that have more clay in the lower part of the subsoil than the Sweatman soil

Land Use

Dominant uses: Pasture, hayland, and woodland
Other uses: Cropland

Cropland

Suitability: Poorly suited
Commonly grown crops: Cotton, corn, soybeans, small grains, and vegetables
Management concerns: Erodibility
Management measures and considerations:

- Contour farming, conservation tillage, crop residue management, stripcropping, and sod-based rotations reduce the hazard of further erosion, stabilize the soil, help to control surface runoff, and increase the rate of water infiltration.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland

Suitability: Well suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility
Management measures and considerations:

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland

Suitability: Well suited
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:

- Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
- Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat

Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:

- Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
- Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
- Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings

Suitability: Suited
Management concerns: Shrink-swell
Management measures and considerations:

- Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.
- Care should be taken to prevent erosion during construction, and vegetation should be reestablished as soon as possible after construction.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Well suited
Management concerns: Erodibility
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 9C for loblolly pine

SwD—Sweatman fine sandy loam, 8 to 15 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Side slopes, backslopes, and shoulder slopes
Shape of areas: Irregular
Size of areas: 10 to 400 acres

Composition

Sweatman and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—dark brown fine sandy loam

Subsoil:
4 to 27 inches—red clay that has brownish mottles in the lower part
27 to 49 inches—mottled light brownish gray, red, and light olive brown clay

Substratum:
49 to 55 inches—yellowish red sandy loam and few fragments of grayish clayey shale
55 to 74 inches—thinly stratified reddish, brownish, and grayish loamy sand
74 to 85 inches—thinly stratified grayish clayey shale, strong brown sandy loam, and red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Fair

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The loamy Ruston soils on narrow ridges
• The loamy Smithdale soils in positions similar to those of the Sweatman soil
• Sweatman soils that have slopes of less than 8 percent or more than 15 percent

Similar soils
• Scattered areas of moderately well drained, clayey soils that have more clay in the lower part of the subsoil than the Sweatman soil

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland
Suitability: Poorly suited
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Contour farming, conservation tillage, crop residue management, stripcropping, and sod-based rotations

Figure 8.—A well managed stand of loblolly pine in an area of Sweatman fine sandy loam, 8 to 15 percent slopes.

reduce the hazard of further erosion, stabilize the soil, help to control surface runoff, and increase the rate of water infiltration.
- The complexity of the slope limits the use of terraces.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- The slope may limit equipment use in the steeper areas when hay is harvested.
- Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited (fig. 8)
Productivity class: Very high for loblolly pine
Management concerns: Equipment use and competition from undesirable plants

Management measures and considerations:
• Logging when the soil has the proper moisture content helps to prevent rutting in the surface layer and the root damage caused by compaction.
• Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Suited
Management concerns: Slope and shrink-swell
Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.
• Reinforcing foundations and footings or backfilling with coarse-textured material helps to strengthen buildings and prevents the damage caused by shrinking and swelling.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability
Management measures and considerations:
• Increasing the size of the absorption field improves system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Suited
Management concerns: Low strength, slope
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Suited
Management concerns: Erodibility and slope
Management measures and considerations:
• Topsoil from disturbed areas should be stockpiled and then replaced before landscaping.
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 9C for loblolly pine

SwF—Sweatman fine sandy loam, 15 to 35 percent slopes

Setting

Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes, backslopes, and toeslopes
Shape of areas: Irregular
Size of areas: 5 to 275 acres

Composition

Sweatman and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—dark brown fine sandy loam

Subsoil:
4 to 27 inches—red clay that has brownish mottles in the lower part
27 to 49 inches—mottled light brownish gray, red, and light olive brown clay

Substratum:
49 to 55 inches—yellowish red sandy loam and few fragments of grayish clayey shale
55 to 74 inches—thinly stratified reddish, brownish, and grayish loamy sand
74 to 85 inches—thinly stratified grayish clayey shale, strong brown sandy loam, and red sandy loam

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Frequency of flooding: None
Hazard of erosion: Severe
Content of organic matter in the surface layer: Low
Tilth: Fair

Minor Components

Dissimilar soils
• The poorly drained Bibb and moderately well drained Kirkville soils on narrow flood plains
• The loamy Heidel and Smithdale soils in positions similar to those of the Sweatman soil
• Sweatman soils that have slopes of less than 15 percent or more than 35 percent

Similar soils
• Scattered areas of moderately well drained, clayey soils that have more clay in the lower part of the subsoil than the Sweatman soil

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland
Suitability: Unsuited
Management concerns: Slope
Management measures and considerations:
• This map unit is severely limited for crop production because of the slope.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited to pasture; unsuited to hayland
Commonly grown crops: Bahiagrass and coastal bermudagrass
Management concerns: Equipment use and erodibility
Management measures and considerations:
• The slope may limit equipment use in the steeper areas.
• Fencing livestock away from streams helps to prevent streambank erosion and sedimentation.
• Using rotational grazing and implementing a well planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Suited
Potential for commercial species: Very high for loblolly pine
Management concerns: Erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
• Installing broad based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
• Establishing a permanent plant cover on roads and landings after the completion of logging helps to control erosion and the siltation of streams.
• Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitations.
• Site preparation practices, such as prescribed burning and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife—good; wetland wildlife—very poor
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of existing trees and adapted understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Structures can be designed to conform to the natural slope.
• Land grading or shaping prior to construction minimizes the damage caused by surface flow of water and reduces the hazard of erosion.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.

Septic tank absorption fields
Suitability: Poorly suited
Management concerns: Restricted permeability and slope
Management measures and considerations:
• Increasing the size of the absorption field and installing distribution lines on the contour improve system performance.
• Installing the distribution lines during dry periods helps to control smearing and sealing of trench walls.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Low strength, slope
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain the stability of the road.
• Vegetating disturbed areas as soon as possible after construction helps to stabilize the soil and reduces the hazard of erosion.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Slope and erodibility
Management measures and considerations:
• Designing plantings to conform to the natural contour of the slope reduces the hazard of erosion and increases the rate of water infiltration.
• Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep the soil on the site.
• Lime, fertilizer, mulch, and irrigation help to establish lawns and landscape plants.

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 9R for loblolly pine

Tr—Trebloc silt loam, frequently flooded

Setting

Landscape: Coastal Plain
Landform: Low terraces
Landform position: Swales, sloughs, and drainageways
Slope: 0 to 1 percent
Shape of areas: Long and narrow
Size of areas: 5 to 500 acres

Composition

Trebloc and similar soils: 90 percent
Dissimilar soils: 10 percent

Typical Profile

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

Subsurface layer:
4 to 9 inches—grayish brown silt loam that has brownish mottles
9 to 13 inches—light brownish gray silt loam that has brownish mottles

Subsoil:
13 to 25 inches—grayish brown silty clay loam and seams of light brownish gray silt loam
25 to 48 inches—light brownish gray silty clay loam that has mottles in shades of gray and brown
48 to 64 inches—mottled light brownish gray, light yellowish brown, and strong brown clay loam
64 to 70 inches—gray sandy clay loam that has brownish mottles

Substratum:
70 to 82 inches—dark gray sandy clay loam that has grayish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Poorly drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: Apparent, at a depth of 1/2 to 1 foot from December through April
Shrink-swell potential: Moderate

Frequency of flooding: Frequent
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Good

Minor Components

Dissimilar soils
• The somewhat poorly drained Quitman and Stough soils in the slightly higher, more convex positions
• Trebloc soils that are ponded for long or very long periods

Similar soils
• Poorly drained soils that have more clay in the subsoil than the Trebloc soil

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture and hayland

Cropland
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited for crop production because of the frequent flooding and seasonal wetness.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Poorly suited
Commonly grown crops: Common bermudagrass, bahiagrass, and dallisgrass
Management concerns: Flooding and wetness
Management measures and considerations:
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
• Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to prevent compaction, maintain productivity, and keep the pasture in good condition.

Woodland
Suitability: Suited
Productivity class: Very high for loblolly pine and hardwoods
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
• Using low-pressure ground equipment minimizes rutting and the damage caused to tree roots by compaction.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Planting seedlings on raised beds helps to establish the seedlings and increases the seedling survival rate.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife and woodland wildlife—fair; wetland wildlife—good
Management concerns: Flooding and wetness
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding and wetness
• This map unit is severely limited as a site for dwellings because of the flooding and seasonal wetness.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding, wetness, and restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding, wetness, and restricted permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding, wetness, and low strength
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.

Lawns and landscaping
Suitability: Poorly suited

Management concerns: Flooding and wetness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface drainage system may be needed in some areas.

Interpretive Groups

Land capability classification: Vw
Woodland ordination symbol: 10W for loblolly pine

Uo—Urbo clay loam, occasionally flooded

Setting

Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes
Slope: 0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 250 acres

Composition

Urbo and similar soils: 85 percent
Dissimilar soils: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown clay loam

Subsoil:
4 to 10 inches—light olive brown silty clay that has grayish mottles
10 to 27 inches—gray silty clay loam that has brownish mottles
27 to 54 inches—gray clay that has brownish mottles
54 to 80 inches—gray clay loam that has brownish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Shrink-swell potential: Moderate
Frequency of flooding: Occasional
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Fair

Minor Components

Dissimilar soils
• The moderately well drained, loamy Kirkville soils on high parts of natural levees
• The loamy Quitman soils on the higher knolls
• The poorly drained Una soils in concave depressions
• The alkaline Leeper soils in positions similar to those of the Urbo soils

Similar soils
• Scattered areas of Urbo soils that have a surface layer of loam or sandy loam
• Scattered areas of somewhat poorly drained, clayey soils that have a surface layer of clay and have smectitic mineralogy

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Suited
Commonly grown crops: Corn and grain sorghum
Management concerns: Flooding, wetness, and tilth
Management measures and considerations:
• Managing this map unit for crop production is difficult because of the hazard of flooding and wetness during the growing season.
• Using well maintained drainageways and ditches to remove excess water improves productivity.
• Tilling when the soil has the proper moisture content helps to prevent clodding and crusting.
• Incorporating crop residue into the surface layer or leaving residue on the surface helps to minimize clodding and crusting and increases the rate of water infiltration.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Pasture and hayland
Suitability: Suited
Commonly grown crops: Bahiagrass, dallisgrass, tall fescue, and white clover
Management concerns: Wetness and flooding
Management measures and considerations:
• Although most of the flooding occurs during the winter and summer, livestock and hay may be damaged during any time of the year.
• A well maintained surface drainage system improves the productivity of most grasses and legumes.
• Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

Woodland
Suitability: Well suited to loblolly pine and hardwoods
Productivity class: Very high for cherrybark oak, loblolly pine, and sweetgum
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
• Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and compaction.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Unsurfaced roads may be impassable during wet periods because of the high content of clay in the soil.
• Planting seedlings on raised beds helps to establish the seedlings and increases the seedling survival rate.
• Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife and wetland wildlife—good
Management concerns: Flooding and wetness
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. If pines are planted, prescribed burning every three years can increase the amount of browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding and wetness.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding and wetness.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Flooding and low strength
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.

Lawns and landscaping
Suitability: Suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface drainage system may be needed in some areas.

Interpretive Groups

Land capability classification: IVw
Woodland ordination symbol: 10W for loblolly pine

UU—Una and Urbo soils, frequently flooded

Setting

Landscape: Coastal Plain
Landform: Flood plains
Landform position: Una—flat and concave slopes in backswamps, swales, and sloughs; Urbo—slightly convex slopes in backswamps and on natural levees
Slope: Una—0 to 1 percent; Urbo—0 to 2 percent
Shape of areas: Long and narrow
Size of areas: 5 to 500 acres

Composition

The composition of this map unit is variable. Some areas consist mainly of the Una soil, some consist mainly of the Urbo soil, and others contain both soils in variable proportions. The composition of a representative unit is 60 percent Una and similar soils, 30 percent Urbo and similar soils, and 10 percent dissimilar soils.

Typical Profile

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

Subsoil:
6 to 26 inches—light brownish gray silty clay loam that has brownish mottles
26 to 61 inches—gray silty clay that has brownish mottles
61 to 80 inches—light brownish gray clay that has brownish mottles

Urbo
Surface layer:
0 to 4 inches—dark grayish brown clay loam

Subsoil:
4 to 10 inches—light olive brown silty clay that has grayish mottles
10 to 27 inches—gray silty clay loam that has brownish mottles
27 to 54 inches—gray clay that has brownish mottles
54 to 80 inches—gray clay loam that has brownish mottles

Soil Properties and Qualities

Potential rooting depth: More than 60 inches
Drainage class: Una—poorly drained; Urbo—somewhat poorly drained
Permeability: Very slow
Available water capacity: High
Seasonal high water table: Una—perched, at a depth of 1/2 to 1 foot from December through April; Urbo—perched, at a depth of 1 to 2 feet from December through April
Shrink-swell potential: High
Frequency of flooding: Frequent
Hazard of erosion: Slight
Content of organic matter in the surface layer: Medium
Tilth: Fair

Minor Components

Dissimilar soils
• The loamy, well drained Cahaba and somewhat poorly drained Stough soils on low knolls and remnants of terraces

Similar soils
• Clayey, moderately well drained soils that have a brownish subsoil
• Scattered areas of somewhat poorly drained, alkaline, clayey soils

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture, hayland, and cropland

Cropland
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited for crop production because of the flooding and wetness.
• A site that has better suited soils should be selected.

Pasture and hayland
Suitability: Suited to pasture; poorly suited to hayland
Commonly grown crops: Bahiagrass, common bermudagrass, dallisgrass, and white clover
Management concerns: Equipment use, flooding, and wetness
Management measures and considerations:
• Using equipment when the soil has the proper moisture content helps to prevent the rutting and compaction of the surface layer caused by the high content of clay.
• Although most of the flooding occurs during the winter and spring, livestock and hay may be damaged during any time of the year.
• Proper stocking rates and restricted grazing during wet periods help to prevent compaction and keep the pasture in good condition.

Woodland
Suitability: Suited to loblolly pine and hardwoods
Productivity class: Una—high for sweetgum and cherrybark oak; Urbo—very high for loblolly pine, sweetgum, and cherrybark oak
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
• Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent rutting and compaction.
• Harvesting timber during the summer or fall reduces the risk of damage from the flooding.
• Bedding the soils prior to planting helps to establish seedlings and increases the seedling survival rate.
• Site preparation practices, such as applying herbicides and chopping, help to control competition from unwanted plants.

Wildlife habitat
Potential to support habitat for: Openland wildlife—fair; woodland wildlife and wetland wildlife—good
Management concerns: Equipment use, flooding, and wetness
Management measures and considerations:
• Openland wildlife habitat can be improved by leaving undisturbed areas of vegetation around cropland and pasture. These areas provide wildlife with food and a place to rest.
• Woodland wildlife habitat can be improved by planting or encouraging the growth of oak trees and suitable understory plants. If pine trees are planted, prescribed burning every three years, rotated

among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.
• Wetland wildlife habitat can be improved by constructing shallow ponds that provide open water areas for waterfowl and furbearers.

Dwellings
Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
• This map unit is severely limited as a site for dwellings because of the flooding and wetness.
• A site that has better suited soils should be selected.

Septic tank absorption fields
Suitability: Unsuited
Management concerns: Flooding, wetness, and restricted permeability
Management measures and considerations:
• This map unit is severely limited as a site for septic tank absorption fields because of the flooding, wetness, and restricted permeability.
• A site that has better suited soils should be selected.
• The local Health Department can be contacted for additional guidance regarding sanitary facilities.

Local roads and streets
Suitability: Poorly suited
Management concerns: Shrink-swell, low strength, and flooding
Management measures and considerations:
• Well-compacted fill material can be used as a road base to help elevate roads above the flooding.
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil.
• Removing as much of the clay that has a high shrink-swell potential as possible and increasing the thickness of the base aggregate improve soil performance.

Lawns and landscaping
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
• Managing this map unit is difficult because of the flooding. Use is severely limited during periods of inundation.
• A surface drainage system may be needed in some areas.

Interpretive Groups

Land capability classification: Vw
Woodland ordination symbol: Una—8W for sweetgum; Urbo—10W for loblolly pine

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

Rex E. Davis, resource conservationist, Natural Resources Conservation Service, helped prepare this section.

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.

In the 1970’s and 1980’s, the principal agricultural enterprises in Smith County were cattle, soybeans, poultry, and truck crops. In recent years, the acreage of soybeans has decreased significantly and the production of poultry and the acreage of truck crops have increased.

In 1993, about 12,000 acres in Smith County, or about 3 percent of the total acreage, was used as cropland. Collectively, truck crops are the main cash crops. Watermelons are grown on about 900 acres, sweetcorn on about 250 acres, tomatoes on 200 acres, cantaloupes on 125 acres, and field peas on 125 acres. Other truck crops grown in the county are squash, pepper, okra, and cucumbers (USDA-ASCS, 1993).

Most vegetable crops produce relatively small amounts of residue and offer little protection against erosion. They are best suited to soils that have slopes of less than 2 percent. If vegetable crops are grown in sloping areas, erosion-control practices should be applied to reduce the hazard of erosion. When topsoil is lost, production falls sharply. Organic matter and many nutrients are lost along with the topsoil. Tilth deteriorates, the rate of infiltration is reduced, and runoff is accelerated. Terraces and row arrangement slow runoff and allow more of the water to enter the ground, where the water becomes available to crops. Ground cover in the form of cover crops or in some cases artificial cover, such as plastic, helps to reduce the hazard of erosion and preserves ground moisture.

Corn, cotton, soybeans, and peanuts are grown in the county. If these crops are grown in sloping areas, soil conserving practices should be applied. Terraces that have vegetated outlets, row arrangement that fits the contour, vegetative strips across the slope, cover

crops, and conservation tillage, such as no-till planting and minimum-till planting, help to control erosion and conserve moisture.

About 250 poultry farms with a total of about 750 to 800 houses produce about 96 million birds in the county. Most of the feed is grown elsewhere, but the litter is used to improve cropland and pasture in the county.

Most soils that are cultivated have a tendency to become compacted by normal tillage. Monitoring fields for compaction allows for periodic subsoiling as needed. Subsoiling increases the amount of moisture that infiltrates the soil while reducing the runoff rate. Subsoiling makes more moisture available to crops and creates a favorable environment for rooting.

In 1993, about 77,600 acres in Smith County, or about 19 percent of the total acreage, was used for pasture (USDA-ASCS, 1993). The most common practice is using bahiagrass for permanent pasture and ryegrass for winter grazing. Ryegrass is either interplanted into bahiagrass sod or is planted on a prepared seedbed. Chicken litter from the local poultry industry is used extensively as fertilizer. It adds nutrients and organic matter to the soil, increases the available water capacity, improves tilth, and helps to control erosion.

The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can be contacted for recommendations regarding irrigation. Improper application can lead to water quality problems, including excess nutrients in runoff and in ground water.

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.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

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. 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 pastureland, for woodland, and for engineering purposes.

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

Capability classes, the broadest groups, are designated by 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, s,* or *c,* 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); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, 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, pastureland, 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 8 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 170,500 acres in Smith County, or about 42 percent of the total acreage, meets the requirements for prime farmland. Although areas of prime farmland are scattered throughout the county, most areas are in the middle and southern parts of the county. Most of the areas are in general soil map units 2, 3, 5, and 7, which are described under the heading “General Soil Map Units.”

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

Linda A. Stine, forester, Natural Resources Conservation Service, helped prepare this section.

About 313,000 acres in Smith County, or about 77 percent of the total acreage, is timberland. Timberland is woodland that is producing or is capable of producing at least 20 cubic feet of industrial wood per acre per year. The ownership of the timberland in Smith County is as follows: private individuals and farmers, 58 percent; forest industry, 15 percent; and Bienville National Forest, 27 percent (USDA, 1987).

Good forest management maintains or enhances soil productivity and water quality. The forest management activities that have the greatest potential for adversely affecting soil productivity and water

quality are timber harvesting and site preparation for future tree crops. Poor application of these practices may cause erosion, nutrient depletion, and compaction. Site-specific management practices help to prevent damage to soil and water resources. The planning of such practices should include consideration of topography, hazard of erosion, season, and natural site fertility

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. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *R* indicates steep slopes; *W*, excess water in or on the soil; *C*, clay in the upper part of the soil; and *S*, sandy texture. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, W, C, and S.

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 prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

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

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

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

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those

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

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

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Trees to plant are those that are suitable for commercial wood production.

Recreation

Robert J. Bradford, resource assistant, U.S. Forest Service, helped prepare this section.

Smith County has a land base of 406,500 acres. Of this, about 27 percent is publicly owned. In the northern part of the county, the Bienville National Forest covers approximately 72,600 acres. In the southern part of the county near Mize, the Mississippi Department of Wildlife, Fisheries, and Parks has an 87-acre lake, which also provides public recreational opportunities. The remaining recreational opportunities and use occur on private lands.

Recreational activities on the public lands in the county include camping, fishing, hunting, hiking, sightseeing, bird watching, swimming, picnicking, water skiing, and boating. Activities on privately owned lands include similar activities with the probable exception of water skiing and boating. Day use activities, such as swimming, picnicking, and fishing, account for the majority of the use in the developed public recreational areas. On other public lands, hunting, hiking, and fishing account for the majority of recreational use.

On the privately owned lands in the county, dispersed activities, such as hunting and fishing, account for the majority of use. Smith County is rural and agricultural. The soils are probably most affected by those recreational activities that involve the use of off-road vehicles. These vehicles are generally either two- or four-wheel-drive trucks or three- or four-wheeled all terrain vehicles that have low pressure tires.

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

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, grain sorghum, millet, and soybeans.

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, ryegrass, vetch, clover, alfalfa, lespedeza, and bahiagrass.

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, wooly croton, switchcane, blackberry, and greenbrier.

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

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are American beautyberry, huckleberry, sumac, elderberry, and plum.

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, cattails, 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, beaver ponds, and other 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, mourning dove, meadowlark, field sparrow, cottontail, red fox, coyotes, rodents, and hawks.

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, owls, woodcock, thrushes, woodpeckers, squirrels, bobcats, gray fox, opossum, raccoon, deer, and chipmunks.

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, beaver, otter, frogs, crawfish, and turtles.

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, 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 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, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, 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, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

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

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

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

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, 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 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 chalk, 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 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, 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. 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 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.

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

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

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

Engineering Index Properties

Table 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 (ASTM, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

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

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

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

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

and in nearby areas and on estimates made in the field.

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

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

Physical 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). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 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. "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.

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.

Physical and Chemical Analyses of Selected Soils

D.E. Pettry, professor of soil science, Mississippi State University, prepared this section.

The results of physical analyses of several typical pedons in the survey area are given in table 17 and the results of chemical analyses in table 18. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. They are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station.

Diverse parent materials in Smith County have produced a complex array of soils having diverse physical and chemical properties. Soil textures range from sand to clay, and soil mineralogy ranges from siliceous to smectitic. Calcareous clay parent materials in the Jackson Prairie region in the northeastern part of the county are associated with clayey, expansive soils that have high levels of calcium and magnesium and that have a calcareous subsoil. Steep, loamy soils on the uplands commonly formed in highly weathered, acid sediments that are leached of bases. Soils on flood plains along major streams commonly formed in complex mixtures of sediments that have high and low base content.

Many of the soils in Smith County are acid and have a relatively low capacity to retain plant nutrients (cations) because of the influence of siliceous parent material. Very deep, well drained, siliceous soils that are in the higher positions are strongly acid or very strongly acid and have a relatively low capacity to retain nutrients. Examples are Ruston and Smithdale soils. Crops grown on these soils respond to fertilizer. Other soils are strongly acid but have a high capacity to retain plant nutrients due to a high content of smectitic clay. Boswell and Louin soils are examples.

The physical properties of soils, such as infiltration rate, conduction, shrink-swell potential, crusting, consistence, and available water capacity, are closely related to the texture of the soil. For example, the very deep, loamy Heidel soils on narrow ridges and side slopes have a relatively high content of sand. The coarse textured surface layer enhances rapid infiltration of water, and the soil is droughty.

Clayey soils, such as the Ichusa, Louin, and Maytag soils, contain a high content of smectitic clay. This clay causes shrinking and swelling during drying and wetting cycles. Cracks develop during dry weather, and water infiltration is rapid until the cracks close. After the cracks close, infiltration and hydraulic conductivity are very slow. The wetting and drying cause vertical and horizontal movement of the soil. This movement makes these soils very unstable as foundation material for buildings and roads.

Chemical properties of the soil, in combination with other soil features, such as permeability, structure, and texture, influence the limitations and potentials of individual soils. Chemical properties are not evident by

visual observations. Laboratory analyses are necessary to determine the properties. The amount and type of clay minerals and the content of organic matter largely regulate the chemical properties of soils. These substances have the capacity to attract and hold exchangeable cations, which are positively charged elements that are bonded to the negatively charged clay minerals and organic matter.

The exchangeable cations may be removed or exchanged through leaching or plant uptake. Cation exchange is the mechanism by which liming corrects soil acidity. Soil that has 1 milliequivalent per 100 grams of extractable acidity (hydrogen + aluminum) is neutralized by 1,000 pounds of calcium carbonate (lime) per acre.

Extractable cations, extractable acidity, and sum of cations are expressed in units of milliequivalents (meq) per 100 grams of dry soil. Milliequivalents per 100 grams of the various cations can be converted to the more common units of pound per acre for the surface plow layer. The plow layer, or topsoil, of an average soil to a depth of 6.67 inches weighs about 2 million pounds per acre. To convert the cations listed in table 18 to pounds per acre, multiply the milliequivalents per 100 grams by 400 for calcium, 240 for magnesium, 780 for potassium, and 460 for sodium.

The system used to classify soils by the National Cooperative Soil Survey uses chemical properties as differentiating criteria in some categories. For example, the Alfisol and Ultisol orders are separated on the basis of percentage of base saturation deep in the subsoil. Base saturation is related to weathering and reflects the replacement of bases by hydrogen. Ultisols have base saturation of less than 35 percent in the lower part of the soil; in Alfisols, such values are greater than 35 percent. Smithdale soils have base saturation of less than 35 percent at a depth of more than 5 feet; they are Ultisols. Many of the soils in Smith County are highly weathered and have base saturation of less than 35 percent.

Determinations were made on soil material smaller than 2 millimeters in diameter. The samples were prepared for analysis by air-drying, careful crushing, and screening through a standard 20-mesh sieve. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. The particle-size analyses shown in table 17 were obtained using Day's hydrometer method (Day, 1956). The methods used in obtaining the other data are indicated in the following list. The codes in parenthesis refer to published methods (USDA, 1991).

Extractable cations—ammonium acetate pH 7.0, uncorrected; calcium (6N2e), magnesium (6O2d), sodium (6P2b), potassium (6Q2b).

Extractable acidity—barium chloride-triethanolamine 1 (6H12).

Cation-exchange capacity—sum of cations (5A32).

Base saturation—sum of cations, TEA, pH 8.2 (5C3).

Reaction (pH)—1:1 water dilution (8C12).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1996; USDA, 1975). 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 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

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

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

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

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, siliceous, semiactive, thermic Typic Hapludults.

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. An example is the Cahaba series. The soils in the Cahaba series are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1975) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1996). 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

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Loamy sediments

Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Flat to slightly concave slopes on nearly level surfaces
Slope: 0 to 2 percent
Taxonomic class: Fine-silty, mixed, active, thermic Typic Endoaqualfs

Adaton soils are commonly associated on the landscape with Freest, Ichusa, Stough, and Urbo soils. The moderately well drained Freest soils are on summits and side slopes. The somewhat poorly drained, clayey Ichusa soils are on side slopes. The somewhat poorly drained Stough soils are in the slightly higher, more convex positions on stream terraces. The somewhat poorly drained, clayey Urbo soils are on flood plains.

Typical Pedon

Adaton silt loam, 0 to 2 percent slopes; in a wooded area about 6.5 miles north of Pineville; 1,650 feet north and 4,070 feet east of the southwest corner of sec. 12, T. 4 N., R. 9 E; USGS Clear Creek topographic quadrangle; lat. 32 degrees 11 minutes 56 seconds N. and long. 89 degrees 19 minutes 31 seconds W.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.
A2—2 to 6 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine faint pale brown (10YR 6/3) iron depletions; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.
Btg1—6 to 28 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; few distinct clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btg2—28 to 40 inches; grayish brown (2.5Y 5/2) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common fine distinct white (10YR 8/1) clay depletions on vertical faces of peds; common medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btg3—40 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine faint white (10YR 8/1) clay depletions on vertical faces of peds; many medium prominent strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btg4—60 to 72 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine faint white (10YR 8/1) clay depletions on vertical faces of peds; many medium prominent strong brown (7.5YR 5/8) and few fine and medium prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.
BC—72 to 81 inches; light brownish gray (2.5Y 6/2) silty clay loam; massive; firm; common fine and medium faint light gray (2.5Y 6/1) iron depletions; many fine, medium, and coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4
Redoximorphic features—few to many masses of iron accumulation in shades of yellow and brown

Btg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—commonly silt loam or silty clay loam; silty clay in the lower part in some pedons
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam, silty clay loam, or silty clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of brown

Alaga Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Parent material: Sandy sediments
Landscape: Coastal Plain uplands
Landform: Stream terraces
Landform position: Convex slopes on summits and shoulder slopes
Slope: 0 to 3 percent
Taxonomic class: Thermic, coated Typic Quartzipsamments

Alaga soils are commonly associated on the landscape with Annemaine, Cahaba, and Jena soils. The moderately well drained, clayey Annemaine soils are in the slightly lower positions on stream terraces. The well drained, loamy Cahaba soils are in positions similar to those of the Alaga soils. The well drained, loamy Jena soils are on flood plains.

Typical Pedon

Alaga loamy fine sand, 0 to 3 percent slopes, rarely flooded; in a pasture about 1.8 miles north of Taylorsville; 50 feet south and 3,500 feet east of the northwest corner of sec. 7, T. 10 N., R. 14 E.; USGS Taylorsville topographic quadrangle; lat. 31 degrees 51 minutes 22 seconds N. and long. 89 degrees 26 minutes 29 seconds W.

Ap—0 to 6 inches; dark brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.
C1—6 to 11 inches; yellowish brown (10YR 5/6) loamy fine sand; single grained; loose; few fine roots; very strongly acid; clear wavy boundary.
C2—11 to 20 inches; brownish yellow (10YR 6/8) loamy fine sand; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.
C3—20 to 36 inches; brownish yellow (10YR 6/6) loamy fine sand; single grained; loose; few thin streaks of very pale brown (10YR 7/3) uncoated sand; very strongly acid; gradual wavy boundary.
C4—36 to 52 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; few fine distinct brownish yellow (10YR 6/6) masses of iron accumulation; strongly acid; gradual wavy boundary.
C5—52 to 80 inches; very pale brown (10YR 8/3) fine sand; single grained; loose; common fine distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid.

Range in Characteristics

Thickness of sandy material: More than 80 inches
Reaction: Very strongly acid to moderately acid throughout the profile, except in areas that have been limed

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 8, and chroma of 3 to 8
Texture—loamy sand, loamy fine sand, sand, or fine sand
Redoximorphic features—none to common masses of iron accumulation in shades of brown

Annemaine Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Stratified clayey and loamy sediments
Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Slightly convex slopes on nearly level terraces
Slope: 0 to 2 percent
Taxonomic class: Fine, mixed, semiactive, thermic Aquic Hapludults

Annemaine soils are commonly associated on the landscape with Alaga, Cahaba, and Trebloc soils. The excessively drained, sandy Alaga soils are in the higher positions. The well drained, loamy Cahaba soils are in the slightly higher positions. The poorly drained Trebloc soils are in the lower positions.

Typical Pedon

Annemaine fine sandy loam, 0 to 2 percent slopes, rarely flooded; in a field about 6.7 miles north of Taylorsville; 1,100 feet west and 600 feet north of the southeast corner of sec. 13, T. 1 N., R. 8 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 55 minutes 08 seconds N. and long. 89 degrees 25 minutes 35 seconds W.

Ap—0 to 7 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; friable; common fine roots; neutral; clear smooth boundary.
Bt1—7 to 20 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure;

firm; common fine roots; common distinct clay films on faces of peds; few medium distinct light gray (10YR 7/2) iron depletions on faces of peds; strongly acid; gradual smooth boundary.

Bt2—20 to 26 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; few fine roots; common distinct clay films on faces of peds; common medium distinct light gray (10YR 7/2) iron depletions; common fine distinct red (2.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt3—26 to 36 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions; few fine distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

BC—36 to 54 inches; 30 percent light yellowish brown (10YR 6/4), 30 percent light brownish gray (10YR 6/2), 20 percent yellowish red (5YR 5/6), and 20 percent brownish yellow (10YR 6/6) loam; weak coarse subangular blocky structure; friable; few fine concretions of iron and manganese oxides; areas of light brownish gray are iron depletions; areas of yellowish red, light yellowish brown, and brownish yellow are masses of iron accumulation; very strongly acid; gradual wavy boundary.

C1—54 to 73 inches; light brownish gray (10YR 6/2) sandy loam; massive; friable; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

C2—73 to 88 inches; strong brown (7.5 YR 5/6) sandy loam; massive; friable; common medium distinct light brownish gray (10YR 6/2) iron depletions; few fine distinct yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches

Reaction: Very strongly acid to slightly acid in the A horizon, except in areas that have been limed; very strongly acid or strongly acid in the Bt, BC, and C horizons

Ap horizon:

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4

Bt horizon:

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8

Texture—clay loam, sandy clay loam, silty clay, or clay

Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon (if it occurs):

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8; or no dominant matrix color and multicolored in shades of red, yellow, gray, and brown

Texture—sandy clay loam, loam, or clay loam

Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

C horizon:

Color—hue of 2.5YR to 2.5Y, value of 5 to 8, and chroma of 3 to 8; or no dominant matrix color and multicolored in shades of red, yellow, brown, and gray

Texture—loamy sand, sandy loam, fine sandy loam, or sandy clay loam

Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Bibb Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Parent material: Stratified loamy and sandy fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes on low parts of flood plains
Slope: 0 to 1 percent
Taxonomic class: Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

Bibb soils are commonly associated on the landscape with Jena, Kirkville, Mantachie, Quitman, and Stough soils. The well drained Jena soils and the moderately well drained Kirkville soils are on the higher parts of natural levees. The somewhat poorly drained Mantachie soils are in the slightly higher positions on flood plains. The somewhat poorly drained Quitman and Stough soils are on low terraces.

Typical Pedon

Bibb fine sandy loam, frequently flooded; in a wooded area about 9.5 miles northeast of Taylorsville; 1,280 feet east and 250 feet north of the southwest corner of sec. 24, T. 1 N., R. 9 E.; USGS Bay Springs topographic quadrangle; lat. 31 degrees 54 minutes 13 seconds N. and long. 89 degrees 20 minutes 03 seconds W.

A—0 to 3 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; many fine and medium roots; strongly acid; clear smooth boundary.
Ag—3 to 10 inches; grayish brown (10YR 5/2) loam; weak fine subangular blocky structure; friable; many fine and medium roots; common fine prominent yellowish red (5YR 5/6) masses of iron accumulation in root channels; very strongly acid; gradual wavy boundary.
Cg—10 to 20 inches; light brownish gray (10YR 6/2) loam; massive; friable; many fine roots; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear smooth boundary.
Ab—20 to 26 inches; very dark grayish brown (10YR 3/2) loam; massive; friable; many fine roots and leaf fragments; very strongly acid; clear wavy boundary.
Cgb1—26 to 40 inches; light brownish gray (10YR 6/2) sandy loam; massive; very friable; common fine roots; few fine faint pale brown (10YR 6/3) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Cgb2—40 to 44 inches; grayish brown (10YR 5/2) loamy sand; massive; very friable; many fine roots; very strongly acid; clear wavy boundary.
Cgb3—44 to 48 inches; light brownish gray (10YR 6/2) sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.
Cgb4—48 to 80 inches; stratified light brownish gray (10YR 6/2) sand and grayish brown (10YR 5/2) loamy sand; massive; very friable; few fine roots; very strongly acid.

Range in Characteristics

Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A horizon:
Color—hue of 10YR, value of 2 to 5, and chroma of 1 to 3

Ag and Ab horizons:
Color—hue of 10YR, value of 3 to 5, and chroma of 1 or 2
Texture—fine sandy loam, sandy loam, or loam
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, red, and brown

Cg horizon:
Color—hue of 10YR to 5Y, value of 5 to 7, and chroma of 2 or less; or neutral in hue and value of 3 to 7
Texture—sandy loam, fine sandy loam, or loam in the upper part and loamy sand or sand in the lower part; thin strata of gravelly textures in some pedons
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Boswell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Parent material: Clayey marine sediments
Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Summits, side slopes, and toeslopes
Slope: 2 to 8 percent
Taxonomic class: Fine, mixed, active, thermic Vertic Paleudalfs

Boswell soils are commonly associated on the landscape with Freest, Savannah, Smithdale, and Sweatman soils. The Freest and Savannah soils are in the higher positions and are fine-loamy. The well drained Smithdale soils are in positions similar to those of the Boswell soils and are fine-loamy. The well drained Sweatman soils are in positions similar to those of the Boswell soils at higher elevations.

Typical Pedon

Boswell loam, 2 to 5 percent slopes, eroded; in a wooded area about 5.5 miles north of Raleigh; 900 feet east and 2,500 feet north of the southwest corner of sec. 23, T. 3 N., R. 7 E.; USGS Raleigh topographic quadrangle; lat. 32 degrees 05 minutes 01 second N. and long. 89 degrees 33 minutes 24 seconds W.

Ap—0 to 2 inches; dark grayish brown (10YR 4/2) loam; weak fine and medium granular structure; friable; many fine and few medium roots; very strongly acid; clear smooth boundary.
Bt1—2 to 7 inches; yellowish red (5YR 5/6) clay; weak

medium subangular blocky structure; firm; many fine and few medium roots; few distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—7 to 15 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—15 to 23 inches; red (2.5YR 4/6) clay; strong medium subangular blocky structure; firm; common fine and few medium roots; many distinct clay films on faces of peds; many medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt4—23 to 28 inches; red (2.5YR 4/6) clay; strong medium angular blocky structure; firm; many distinct clay films on faces of peds; many fine, medium, and coarse prominent light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bt5—28 to 39 inches; light brownish gray (10YR 6/2) clay; strong medium angular blocky structure; firm; many distinct clay films on faces of peds; many fine and medium prominent red (2.5YR 4/6) and yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt6—39 to 45 inches; light brownish gray (10YR 6/2) clay; strong medium angular blocky structure; firm; many distinct clay films on faces of peds; many fine and medium prominent red (2.5YR 4/6) and yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btss1—45 to 50 inches; light brownish gray (10YR 6/2) clay; strong medium angular blocky structure; firm; many distinct clay films on faces of peds; few intersecting slickensides; many fine and coarse prominent red (2.5YR 4/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btss2—50 to 63 inches; red (2.5YR 4/6) clay; moderate medium angular blocky structure; firm; many distinct clay films on faces of peds; few intersecting slickensides; many fine and medium prominent light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual wavy boundary.

Btss3—63 to 73 inches; yellowish red (5YR 5/6) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; firm; many distinct clay films on faces of peds; common intersecting slickensides; few fine distinct light brownish gray (10YR 6/2) iron depletions; many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

BC—73 to 77 inches; light brownish gray (2.5Y 6/2) clay; large wedge-shaped aggregates parting to moderate medium angular blocky and weak medium platy structure; very firm; common intersecting slickensides; common fine and medium prominent red (2.5YR 5/6) and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

C—77 to 93 inches; light gray (2.5Y 7/2) clay; weak thin platy structure; firm; few fine distinct greenish gray (5G 5/1) iron depletions; common medium prominent reddish yellow (7.5YR 6/6), common fine distinct yellowish brown (10YR 5/6), and few fine prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches

Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

Ap horizon:

- Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 3

E horizon (if it occurs):

- Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
- Texture—fine sandy loam, sandy loam, or loam

Bt horizon (upper part):

- Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6
- Texture—clay loam, silty clay loam, silty clay, or clay
- Redoximorphic features—none to common iron depletions in shades of gray and masses of iron accumulation in shades of brown, red, and gray

Bt horizon (lower part) and Btss horizon:

- Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 2 to 6; or no dominant matrix color and multicolored in shades of brown, red, gray, and yellow
- Texture—clay loam, silty clay loam, silty clay, or clay
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of brown, red, and yellow

BC or C horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 3
Texture—silty clay or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Cahaba Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy and sandy fluvial sediments
Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Convex slopes on nearly level surfaces
Slope: 0 to 2 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Cahaba soils are commonly associated on the landscape with Alaga, Annemaine, and Trebloc soils. The excessively drained, sandy Alaga soils are in positions similar to those of the Cahaba soils at slightly higher elevations. The moderately well drained, clayey Annemaine soils are in the slightly lower, less convex positions. The poorly drained Trebloc soils are in the lower positions.

Typical Pedon

Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded; in a pasture about 8.5 miles north of Taylorsville; 1,350 feet east and 2,375 feet south of the northwest corner of sec. 6, T. 1 N., R. 9 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 57 minutes 17 seconds N. and long. 89 degrees 25 minutes 06 seconds W.

Ap—0 to 5 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.
AB—5 to 10 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; many fine roots; very strongly acid; clear smooth boundary.
Bt1—10 to 36 inches; yellowish red (5YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.
Bt2—36 to 45 inches; yellowish red (5YR 5/8) sandy loam; weak medium subangular blocky structure; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.
C1—45 to 68 inches; strong brown (7.5YR 5/8) loamy sand; single grained; loose; common medium distinct very pale brown (10YR 7/3) streaks of clean sand; strongly acid; gradual wavy boundary.
C2—68 to 81 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; common fine distinct light gray (10YR 7/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid.

Range in Characteristics

Solum thickness: 36 to 60 inches
Reaction: Very strongly acid to moderately acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

AB or BA horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—fine sandy loam, sandy loam, or loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—loam, sandy loam, or clay loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8
Texture—sand, loamy sand, sandy loam, and fine sandy loam
Redoximorphic features—few or common iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Freest Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Loamy and clayey sediments
Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Slope: 2 to 8 percent
Taxonomic class: Fine-loamy, siliceous, active, thermic Aquic Paleudalfs

Freest soils are commonly associated on the landscape with Adaton, Boswell, Maytag, Ichusa, and Savannah soils. The poorly drained Adaton soils are on low terraces. The Boswell soils are on the lower slopes and have a clayey argillic horizon. The Maytag soils are in the lower positions and have a clayey, alkaline cambic horizon. The somewhat poorly drained Ichusa soils are also in the lower positions and have a clayey argillic horizon. The Savannah soils are in positions similar to those of the Freest soils at higher elevations and have a fragipan.

Typical Pedon

Freest fine sandy loam, 2 to 5 percent slopes; in a wooded area about 5 miles northeast of Pineville; 3,700 feet east and 500 feet north of the southwest corner of sec. 10, T. 4 N., R. 9 E.; USGS Clear Springs topographic quadrangle; lat. 32 degrees 11 minutes 44 seconds N. and long. 89 degrees 21 minutes 36 seconds W.

A—0 to 6 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

E—6 to 8 inches; pale brown (10YR 6/3) sandy loam; weak coarse subangular blocky structure; very friable; few fine and medium roots; very strongly acid; clear smooth boundary.

Bt1—8 to 17 inches; yellowish brown (10YR 5/6) loam; weak fine subangular blocky structure; friable; few fine roots; few fine pores; common faint clay films on faces of peds; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; gradual wavy boundary.

Bt2—17 to 27 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine pores; many medium distinct light brownish gray (10YR 6/2) iron depletions with clear boundaries within the matrix; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; clear wavy boundary.

Btg1—27 to 33 inches; light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) and few fine prominent red (2.5YR 4/6) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; gradual wavy boundary.

Btg2—33 to 41 inches; light brownish gray (2.5Y 6/2) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common distinct clay films on faces of peds; common distinct white (10YR 8/2) clay depletions on vertical faces of prisms; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) and few fine prominent red (2.5YR 4/6) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; gradual wavy boundary.

Btg3—41 to 53 inches; light brownish gray (2.5Y 6/2) clay; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; many distinct clay films on faces of peds; common distinct white (10YR 8/2) clay depletions on vertical faces of prisms; common medium distinct strong brown (7.5YR 5/6) and few fine prominent red (2.5YR 4/6) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; gradual wavy boundary.

Btg4—53 to 62 inches; light brownish gray (2.5Y 6/2) clay; moderate fine and medium angular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation with clear boundaries within the matrix; very strongly acid; gradual wavy boundary.

Btg5—62 to 72 inches; light brownish gray (2.5Y 6/2) clay; moderate fine and medium angular blocky structure; firm; common distinct clay films on faces of peds; common fine black concretions of iron and manganese oxides; many medium distinct strong brown (7.5YR 5/6) and common fine distinct brown (10YR 4/3) masses of iron accumulation with clear boundaries within the matrix; moderately acid; gradual wavy boundary.

BC—72 to 81 inches; strong brown (7.5YR 5/6) clay; large wedge-shaped aggregates parting to weak medium platy structure; firm; common large intersecting slickensides that have distinct grooved and polished faces; common medium distinct gray (10YR 5/1) and light brownish gray (10YR 6/2) iron depletions with clear boundaries on faces of slickensides; common medium distinct yellowish brown (10YR 5/6) and reddish yellow (7.5YR 6/8) masses of iron accumulation with clear boundaries within the matrix; neutral.

Range in Characteristics

Solum thickness: More than 60 inches

Reaction: Very strongly acid or strongly acid in the A horizon, except in areas that have been limed, and

in the E horizon, the Bt horizon, and the upper part of the Btg horizon; very strongly acid to neutral in the lower part of the Btg horizon and in the BC horizon

A or Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8
Texture—loam, clay loam, or sandy clay loam
Redoximorphic features—few or common iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Btg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2; or no dominant matrix color and multicolored in shades of red, yellow, brown, and gray
Texture—clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of red, yellow, and brown
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Heidel Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes and backslopes
Slope: 8 to 35 percent
Taxonomic class: Coarse-loamy, siliceous, subactive, thermic Typic Paleudults

Heidel soils are commonly associated on the landscape with Ruston, Smithdale, and Sweatman soils. The Ruston soils are on summits of ridges and are fine-loamy. The Smithdale soils are in positions similar to those of the Heidel soils and are fine-loamy. The Sweatman soils are in positions similar to those of the Heidel soils and have a clayey argillic horizon.

Typical Pedon

Heidel sandy loam, 15 to 35 percent slopes; in a wooded area about 4 miles south of Sylvarena; 800 feet east and 750 feet north of the southwest corner of sec. 5, T. 1 N., R. 9 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 56 minutes 55 seconds N. and long. 89 degrees 23 minutes 29 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.
E—6 to 9 inches; yellowish brown (10YR 5/4) sandy loam; weak coarse subangular blocky structure; common fine roots; very strongly acid; abrupt smooth boundary.
Bt1—9 to 30 inches; yellowish red (5YR 5/6) sandy loam; weak medium subangular blocky structure; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt2—30 to 55 inches; yellowish red (5YR 5/8) loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt3—55 to 80 inches; yellowish red (5YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few thin streaks of uncoated sand; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—sandy loam or loamy sand

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—fine sandy loam, sandy loam, or loam

Ichusa Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Clayey marine sediments
Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Side slopes and shoulder slopes
Slope: 2 to 8 percent
Taxonomic class: Fine, smectitic, thermic Aquic Dystruderts

Ichusa soils are commonly associated on the landscape with Adaton, Freest, Louin, Leeper, Maytag, and Urbo soils. The poorly drained, loamy Adaton soils are on low terraces. The moderately well drained, loamy Freest soils are on summits of ridges. The Louin soils are on nearly level summits and have hue of 10YR or yellower throughout the subsoil. The Leeper and Urbo soils are on flood plains and are subject to flooding. The moderately well drained Maytag soils are in positions similar to those of the Ichusa soil and are alkaline throughout.

Typical Pedon

Ichusa silty clay loam, 2 to 5 percent slopes; on a microknoll in a wooded area about 4.9 miles northeast of Pineville; 1,900 feet north and 1,350 feet east of the southwest corner of sec. 10, T. 4 N., R. 9 E.; USGS Clear Springs topographic quadrangle; lat. 32 degrees 11 minutes 56 seconds N. and long. 89 degrees 22 minutes 05 seconds W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak fine and medium granular structure; friable, sticky and slightly plastic; many fine and medium roots; few worm channels; very strongly acid; clear smooth boundary.

AB—4 to 11 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky and angular blocky structure; firm, sticky and plastic; few fine pores; many fine and few medium roots; many medium distinct dark grayish brown (10YR 4/2) and few medium distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

Btss1—11 to 31 inches; 40 percent light brownish gray (10YR 6/2), 30 percent yellowish brown (10YR 5/4), 20 percent red (2.5YR 5/8), and 10 percent yellowish red (5YR 5/6) clay; weak coarse prismatic structure parting to strong fine and medium angular blocky; firm, very sticky and plastic; few fine pores; common fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; common faint clay films on faces of peds and in pores; areas of light brownish gray are iron depletions; areas of yellowish brown, red, and yellowish red are masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss2—31 to 40 inches; brownish yellow (10YR 6/8) clay; large wedge-shaped aggregates parting to strong fine and medium angular blocky structure; very firm, very sticky and very plastic; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 4 to 7 inches wide and 0.5 to 1.5 inches deep; common faint clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bkss1—40 to 53 inches; light olive brown (2.5Y 5/4) clay; large wedge-shaped aggregates parting to strong fine and medium angular blocky structure; very firm, very sticky and very plastic; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 4 to 7 inches wide and 0.5 to 1.5 inches deep; many fine distinct grayish brown (2.5Y 5/2) iron depletions; few fine nodules of calcium carbonate; slightly acid; clear wavy boundary.

Bkss2—53 to 80 inches; 30 percent yellowish brown (10YR 5/8), 25 percent light brownish gray (2.5Y 6/2), 25 percent grayish brown (10YR 5/2), and 20 percent brownish yellow (10YR 6/8) clay; large wedge-shaped aggregates parting to strong fine and medium angular blocky structure; very firm, very sticky and very plastic; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 4 to 7 inches wide and 0.5 to 1.5 inches deep; few fine nodules of calcium carbonate; many medium distinct dark gray (10YR 4/1) iron depletions on faces of slickensides; areas of light brownish gray and grayish brown are iron depletions; areas of yellowish brown and brownish yellow are masses of iron accumulation; slightly effervescent; slightly alkaline.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to alkaline soil material: 30 to 60 inches

Reaction: Very strongly acid in the A horizon, except in areas that have been limed, and in the AB horizon and the upper part of the Btss horizon; very strongly acid to moderately acid in the lower part of the Btss horizon; slightly acid to moderately alkaline in the Bkss horizon

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

AB or BA horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of brown, yellow, and red

Btss horizon:
Color—commonly no dominant matrix color and multicolored in shades of brown, gray, red, and olive; or hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—silty clay or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, red, and brown

Bkss horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of brown, olive, gray, and yellow
Texture—silty clay or clay
Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, olive, and brown

Jena Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Convex slopes on natural levees
Slope: 0 to 2 percent
Taxonomic class: Coarse-loamy, siliceous, active, thermic Fluventic Dystrochrepts

Jena soils are commonly associated on the landscape with Alaga, Bibb, Cahaba, Kirkville, and Mantachie soils. The excessively drained, sandy Alaga soils are on terraces at the higher elevations. The poorly drained Bibb soils are in the lower, concave positions on flood plains. The Cahaba soils are on terraces at the higher elevations and have a loamy argillic horizon. The moderately well drained Kirkville soils are in the slightly lower positions on natural levees. The somewhat poorly drained Mantachie soils are in the lower positions on flood plains.

Typical Pedon

Jena fine sandy loam, occasionally flooded; in a wooded area about 4.25 miles west of Taylorsville; 2,250 feet east and 850 feet north of the southwest corner of sec. 16, T. 10 N., R. 15 W.; USGS Mize topographic quadrangle; lat. 31 degrees 49 minutes 46 seconds N. and long. 89 degrees 30 minutes 47 seconds W.

Ap—0 to 6 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine and common medium roots; very strongly acid; clear smooth boundary.
Bw1—6 to 27 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.
Bw2—27 to 45 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.
C1—45 to 53 inches; yellowish brown (10YR 5/6) sandy loam; massive; very friable; few fine roots; few fine distinct gray (10YR 6/1) iron depletions; very strongly acid; gradual wavy boundary.
C2—53 to 81 inches; 40 percent light yellowish brown (10YR 6/4), 30 percent yellowish brown (10YR 5/6), and 30 percent light brownish gray (10YR 6/2) sandy loam; massive; very friable; few thin strata of loamy sand; areas of yellowish brown are masses of iron accumulation; areas of light brownish gray are iron depletions; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 65 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6

Texture—fine sandy loam, sandy loam, or loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of brown and gray
Texture—fine sandy loam, sandy loam, or loamy fine sand
Redoximorphic features (if they occur)—iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Kirkville Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Loamy fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Convex slopes on natural levees
Slope: 0 to 2 percent
Taxonomic class: Coarse-loamy, siliceous, active, thermic Fluvaquentic Dystrochrepts

Kirkville soils are commonly associated on the landscape with Bibb, Jena, Mantachie, Quitman, and Stough soils. The poorly drained Bibb soils are in flat or concave positions on natural levees and in backswamps. The well drained Jena soils are in the slightly higher positions on natural levees. The somewhat poorly drained Mantachie soils are in the lower positions on flood plains. The somewhat poorly drained Quitman and Stough soils are on low terraces.

Typical Pedon

Kirkville fine sandy loam, occasionally flooded; in a wooded area about 12 miles west of Raleigh; 1,700 feet west and 1,120 feet south of the northeast corner of sec. 18, T. 3 N., R. 6 E.; USGS White Oak topographic quadrangle; lat. 32 degrees 06 minutes 07 seconds N. and long. 89 degrees 43 minutes 06 seconds W.

Ap—0 to 5 inches; dark brown (10YR 4/3) fine sandy loam; moderate fine and medium granular structure; friable; common fine and few medium roots; strongly acid; clear smooth boundary.
Bw1—5 to 14 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; clear wavy boundary.
Bw2—14 to 29 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; few fine roots; few fine distinct light brownish gray (10YR 6/2) iron depletions; few fine distinct yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Bg1—29 to 48 inches; light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Bg2—48 to 80 inches; light brownish gray (10YR 6/2) sandy clay loam; moderate medium subangular blocky structure; friable; few fine concretions of iron and manganese oxides; common medium distinct strong brown (7.5YR 5/8) and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: 30 to more than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 8
Texture—fine sandy loam, sandy loam, or loam
Redoximorphic features—none to common iron depletions in shades of gray and masses of iron accumulation in shades of brown and red

Bg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—fine sandy loam, sandy loam, loam, or sandy clay loam
Redoximorphic features—common or many masses of iron accumulation in shades of brown and red

Leeper Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Clayey fluvial sediments
Landscape: Jackson Prairie
Landform: Flood plains
Landform position: Flat to slightly concave slopes in backswamps

Slope: 0 to 2 percent
Taxonomic class: Fine, smectitic, nonacid, thermic Vertic Epiaquepts

Leeper soils are commonly associated on the landscape with Ichusa, Louin, Maytag, Una, and Urbo soils. The Ichusa, Louin, and Maytag soils are on uplands adjacent to areas of the Leeper soils and are not subject to flooding. The poorly drained Una soils are in the slightly lower positions on flood plains. The Urbo soils are in positions similar to those of the Leeper soils and are more acid throughout.

Typical Pedon

Leeper clay loam, occasionally flooded; in a pasture about 5.25 miles east of Raleigh; 2,200 feet east and 1,050 feet south of the northwest corner of sec. 12, T. 2 N., R. 8 E.; USGS Louin SW topographic quadrangle; lat. 31 degrees 01 minute 51 seconds N. and long. 89 degrees 25 minutes 58 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) clay loam; strong fine and medium granular structure; firm; common fine roots; neutral; clear smooth boundary.
Bw—6 to 19 inches; dark grayish brown (10YR 4/2) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual smooth boundary.
Bg1—19 to 28 inches; grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine concretions of iron and manganese oxides; common medium distinct very dark gray (10YR 3/1) iron depletions; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual wavy boundary.
Bg2—28 to 41 inches; gray (2.5Y 5/1) silty clay; moderate medium angular blocky structure; firm; few pressure faces; common medium distinct very dark gray (10YR 3/1) manganese stains on faces of peds; common medium distinct yellowish brown (10YR 5/4) and few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; neutral; gradual wavy boundary.
Cg1—41 to 60 inches; gray (2.5Y 5/1) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine concretions of iron and manganese oxides; few medium distinct very dark gray (10YR 3/1) manganese stains on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual wavy boundary.
Cg2—60 to 67 inches; gray (10YR 6/1) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine, medium, and coarse nodules of calcium carbonate; few fine concretions of iron and manganese oxides; many fine, medium, and coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual wavy boundary.
Cg3—67 to 89 inches; light gray (10YR 7/1) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine, medium, and coarse nodules of calcium carbonate; few fine concretions of iron and manganese oxides; many fine, medium, and coarse prominent yellowish brown (10YR 5/6) and few fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; slightly alkaline.

Range in Characteristics

Solum thickness: 40 to more than 60 inches
Reaction: Slightly acid to slightly alkaline in the A or Ap horizon and neutral to moderately alkaline in the Bw, Bg, and Cg horizons

A or Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4, and chroma of 2; or no dominant matrix color and multicolored in shades of brown and gray
Texture—clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—few or common iron depletions in shades of gray and masses of iron accumulation in shades of brown

Bg horizon:
Color—hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silty clay loam, silty clay, clay loam, or clay
Redoximorphic features—common or many masses of iron accumulation in shades of yellow, red, and brown

Cg horizon:
Color—hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2; or no dominant matrix color and multicolored in shades of red, yellow, brown, and gray
Texture—silty clay or clay
Redoximorphic features—iron depletions in shades of gray and iron accumulations in shades of red, yellow, and brown

Louin Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Clayey marine sediments
Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Nearly level summits on broad ridges
Slope: 0 to 2 percent
Taxonomic class: Fine, smectitic, thermic Aquic Dystruderts

Louin soils are commonly associated on the landscape with Ichusa, Leeper, Maytag, and Urbo soils. The Ichusa soils are on side slopes and commonly have hue of 7.5YR or redder in the upper part of the subsoil. The Leeper and Urbo soils are on flood plains and are subject to flooding. The moderately well drained Maytag soils are in the higher positions and are alkaline throughout.

Typical Pedon

Louin silty clay, 0 to 2 percent slopes; on a microknoll in a wooded area about 5 miles north of Pineville; 450 feet east and 2,350 feet north of the southwest corner of sec. 3, T. 4 N., R. 9 E.; USGS Clear Springs topographic quadrangle; lat. 32 degrees 12 minutes 53 seconds N. and long. 89 degrees 22 minutes 15 seconds W.

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

Bt—3 to 14 inches; yellowish brown (10YR 5/4) clay; strong medium angular and subangular blocky structure; firm; many fine and common medium roots; common pressure faces; few faint clay films on faces of peds; few fine concretions of iron and manganese oxides; many fine and medium distinct light brownish gray (10YR 6/2) iron depletions; few medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss—14 to 23 inches; yellowish brown (10YR 5/6) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; firm; common fine and medium roots; common pressure faces; few faint clay films on faces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 2 to 6 inches across and 0.25 to 0.75 inch deep; many fine, medium, and coarse distinct light brownish gray (10YR 6/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bssg—23 to 49 inches; light brownish gray (10YR 6/2) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; few fine roots; common pressure faces; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 2 to 6 inches across and 0.25 to 0.75 inch deep; many fine, medium, and coarse distinct yellowish brown (10YR 5/6) and prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bkss1—49 to 70 inches; 50 percent yellowish brown (10YR 5/6), 30 percent light brownish gray (10YR 6/2), and 20 percent strong brown (7.5YR 5/6) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 2 to 6 inches across and 0.25 to 0.75 inch deep; few fine nodules of calcium carbonate; areas of light brownish gray are iron depletions; areas of strong brown and yellowish brown are masses of iron accumulation; neutral; gradual wavy boundary.

Bkss2—70 to 75 inches; yellowish brown (10YR 5/6) clay; large wedge-shaped aggregates parting to strong fine and medium angular blocky structure; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 2 to 6 inches across and 0.25 to 0.75 inch deep; few fine nodules of calcium carbonate; few fine concretions of iron and manganese oxides; common fine and medium distinct light brownish gray (2.5Y 6/2) and grayish brown (10YR 5/2) iron depletions; few fine and medium prominent yellowish red (5YR 5/6) masses of iron accumulation; slightly alkaline; gradual wavy boundary.

C—75 to 82 inches; yellowish brown (10YR 5/6) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 2 to 6 inches across and 0.25 to 0.75 inch deep; few fine crystals of calcium carbonate; few fine concretions of iron and manganese oxides; common fine and medium distinct gray (10YR 6/1) iron depletions; common medium distinct reddish yellow (7.5YR 6/6) masses of iron accumulation; slightly effervescent; slightly alkaline.

Range in Characteristics

Solum thickness: 38 to more than 60 inches
Reaction: Very strongly acid in the A or Ap horizon, except in areas where lime has been applied; very strongly acid or strongly acid in the Bt, Btss, and Bssg horizons; moderately acid to slightly alkaline in the Bkss and C horizons

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

Bt and Btss horizons:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 6; or no dominant matrix color and multicolored in shades of brown and gray
Texture—silty clay or clay
Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow or brown

Bssg horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2; or no dominant matrix color and multicolored in shades of gray, yellow, and brown
Texture—silty clay or clay
Redoximorphic features—common or many iron depletions in shades of gray and iron accumulations in shades of yellow and brown

Bkss horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of brown and olive
Texture—silty clay or clay
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of brown and yellow
Other features—few or common nodules, concretions, or crystals of calcium carbonate

C horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6; or no dominant matrix color and multicolored in shades of brown and gray
Texture—clay or silty clay
Redoximorphic features—few or common iron depletions in shades of gray and masses of iron accumulation in shades of yellow, olive, and brown
Other features—few or common nodules, concretions, or crystals of calcium carbonate

Mantachie Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Parent material: Loamy fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes on the lower parts of natural levees
Slope: 0 to 2 percent
Taxonomic class: Fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts

Mantachie soils are commonly associated on the landscape with Bibb, Jena, and Kirkville soils. The poorly drained Bibb soils are in the slightly lower positions on flood plains. The well drained Jena soils and the moderately well drained Kirkville soils are in the slightly higher positions on natural levees.

Typical Pedon

Mantachie silt loam, frequently flooded; in a wooded area about 8.5 miles southwest of Raleigh; 1,400 feet south and 1,000 feet east of the northwest corner of sec. 12, T. 1 N., R. 6 E.; USGS Magee topographic quadrangle; lat. 31 degrees 56 minutes 31 seconds N. and long. 89 degrees 38 minutes 29 seconds W.

A—0 to 3 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.
Bw—3 to 11 inches; 40 percent grayish brown (10YR 5/2), 30 percent dark yellowish brown (10YR 4/6), and 30 percent brown (10YR 5/3) loam; weak fine and medium subangular blocky structure; friable; few medium and common fine roots; areas of grayish brown are iron depletions; areas of dark yellowish brown and brown are masses of iron accumulation; very strongly acid; clear wavy boundary.
Bg1—11 to 25 inches; light brownish gray (10YR 6/2)

loam; weak medium subangular blocky structure; friable; few fine roots; few fine concretions of iron and manganese oxides; many medium distinct light yellowish brown (10YR 6/4) and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg2—25 to 40 inches; gray (10YR 6/1) clay loam; weak medium subangular blocky structure; friable; few fine concretions of iron and manganese oxides; common medium distinct yellowish brown (10YR 5/6) and common medium faint light yellowish brown (10YR 6/4) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Cg1—40 to 68 inches; grayish brown (10YR 5/2) clay loam; massive; friable; many fine and medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Cg2—68 to 82 inches; gray (10YR 6/1) sandy clay loam; massive; friable; common fine concretions of iron and manganese oxides; common fine and medium prominent brownish yellow (10YR 6/6) and strong brown (7.5YR 5/8) masses of iron accumulation; slightly acid.

Range in Characteristics

Solum thickness: 30 to 65 inches

Reaction: Very strongly acid or strongly acid in the A horizon, except in areas that have been limed, and in the B horizon; very strongly acid to slightly acid in the C horizon

A or Ap horizon:
- Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Bw horizon:
- Color—commonly no dominant matrix color and multicolored in shades of gray, yellow, and brown; or hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6
- Texture—loam, sandy clay loam, or clay loam
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Bg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—loam, sandy clay loam, or clay loam
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Cg horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—loam, sandy clay loam, or clay loam
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, red, and brown

Maytag Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Alkaline clay
Landscape: Jackson Prairie uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes on broad ridges
Slope: 1 to 8 percent
Taxonomic class: Fine, smectitic, thermic Oxyaquic Hapluderts

Maytag soils are commonly associated on the landscape with Freest, Ichusa, Leeper, and Louin soils. The Freest soils are in the higher positions and are fine-loamy. The somewhat poorly drained Ichusa soils are in positions similar to those of the Maytag soils and are acid in the upper part of the subsoil. The somewhat poorly drained Leeper soils are on flood plains and are subject to flooding. The somewhat poorly drained Louin soils are in the lower positions and are acid in the upper part of the subsoil.

Typical Pedon

Maytag silty clay, 1 to 8 percent slopes; in a wooded area about 4 miles northeast of Pineville; 1,900 feet east and 1,850 feet north of the southwest corner of sec. 23, T. 4 N., R. 9 E.; USGS Clear Springs topographic quadrangle; lat. 32 degrees 10 minutes 11 seconds N. and long. 89 degrees 20 minutes 56 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay; strong medium and coarse granular structure; firm, slightly sticky and plastic; many fine roots; slightly alkaline; clear smooth boundary.

AB—6 to 11 inches; 50 percent dark grayish brown (2.5Y 4/2) and 50 percent light olive brown (2.5Y 5/4) silty clay; weak coarse prismatic structure parting to strong medium and coarse angular blocky; firm; common fine roots; common pressure faces; common fine soft masses of calcium carbonate; few fine distinct grayish brown (10YR 5/2) iron depletions along root channels; strongly

Figure 9.—A slickenside in an area of Maytag soils. The polished and grooved surface of the slickenside indicates that the soil has a high shrink-swell potential. Slickensides are formed by the pressure exerted when drying and wetting cause the soil to shrink and swell.

effervescent; moderately alkaline; clear wavy boundary.

Bkss1—11 to 17 inches; light olive brown (2.5Y 5/4) clay; weak coarse prismatic structure parting to moderate medium and coarse angular blocky; firm; common fine roots; common pressure faces; common large intersecting slickensides that have distinct polished and grooved surfaces (fig. 9); grooves are 1 to 3 inches wide and .25 to 1.5 inches deep; common fine nodules of calcium carbonate; many distinct dark grayish brown (10YR 4/2) iron depletions on faces of peds; strongly effervescent; moderately alkaline; clear wavy boundary.

Bkss2—17 to 29 inches; light yellowish brown (2.5Y 6/4) clay; large wedge-shaped aggregates parting to moderate fine and coarse angular blocky structure; firm; few fine roots; common pressure faces; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 1 to 3 inches wide and .25 to 1.5 inches deep; common fine nodules of calcium carbonate; many fine and medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss3—29 to 34 inches; light yellowish brown (2.5Y 6/3) silty clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 1 to 3

inches wide and .25 to 1.5 inches deep; many fine and medium nodules of calcium carbonate; many medium and coarse distinct brownish yellow (10YR 6/8) masses of iron accumulation; violently effervescent; moderately alkaline; gradual wavy boundary.

Bkss4—34 to 52 inches; pale yellow (2.5Y 7/3) clay; large wedge-shaped aggregates parting to strong fine and medium angular blocky structure; firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 1 to 3 inches wide and .25 to 1.5 inches deep; many fine nodules of calcium carbonate; few fossil shells; many medium and coarse prominent reddish yellow (7.5YR 6/8) masses of iron accumulation; violently effervescent; slightly alkaline; gradual wavy boundary.

Bkss5—52 to 68 inches; 40 percent pale yellow (2.5Y 7/3), 35 percent brownish yellow (10YR 6/8), and 25 percent strong brown (7.5YR 5/6) clay; large wedge-shaped fragments parting to strong fine and medium angular blocky structure; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 1 to 3 inches wide and .25 to 1.5 inches deep; few thin shell fossils; many fine nodules of calcium carbonate; areas of brownish yellow and strong brown are masses of iron accumulation; violently effervescent; slightly alkaline; gradual wavy boundary.

C—68 to 82 inches; light brownish gray (2.5Y 6/2) clay; weak medium and thick platy rock structure; very firm; few fossil shells; many fine nodules of calcium carbonate; few medium distinct gray (10YR 6/1) iron depletions; many fine, medium, and coarse prominent reddish yellow (7.5YR 6/8) and many medium and coarse distinct light yellowish brown (2.5Y 6/4) masses of iron accumulation on faces of peds; violently effervescent; moderately alkaline.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Neutral to moderately alkaline throughout the profile

A or Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4

AB or BA horizon (if it occurs):
Color—hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4
Texture—clay or silty clay
Redoximorphic features—none to common iron depletions in shades of gray and masses of iron accumulation in shades of brown

Bkss horizon: (upper part)
Color—hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 to 8
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, brown, and olive

Bkss horizon (lower part):
Color—hue of 2.5Y or 5Y, value of 5 to 7, and chroma of 2 to 6; or no dominant matrix color and multicolored in shades of yellow, brown, olive, or gray
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, brown, and olive

C horizon:
Color—hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 to 6
Texture—silty clay or clay
Redoximorphic features (if they occur)—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow, brown, and olive

Ora Series

Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Slope: 2 to 8 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Fragiudults

Ora soils are commonly associated on the landscape with Savannah, Smithdale, and Sweatman soils. The Savannah soils have hue of 7.5YR or yellower in the subsoil and are in positions similar to those of the Ora soils at lower elevations. The Smithdale soils are on side slopes at the lower elevations and do not have a fragipan. The Sweatman soils are on side slopes at the lower elevations and have a clayey argillic horizon.

Typical Pedon

Ora fine sandy loam, 2 to 5 percent slopes; in a pasture about 6 miles west of Mize; 2,800 feet west and 2,400 feet south of the northeast corner of sec. 35, T. 1 N., R. 6 E.; USGS Magee topographic quadrangle; lat. 31 degrees 52 minutes 51 seconds N. and long. 89 degrees 39 minutes 14 seconds W.

Ap—0 to 2 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; very strongly acid; clear smooth boundary.

E—2 to 7 inches; yellowish brown (10YR 5/4) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and common medium roots; very strongly acid; clear wavy boundary.

Bt1—7 to 15 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; many fine and common medium and coarse roots; few distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—15 to 25 inches; yellowish red (5YR 5/8) loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; few distinct clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

Btx1—25 to 36 inches; yellowish red (5YR 5/6) sandy loam; moderate very coarse prismatic structure; very firm; compact and brittle in about 70 percent of the volume; few fine and medium roots; many fine pores; common distinct clay films on vertical faces of peds; prominent light brownish gray (10YR 6/2) clay depletions in thin seams between prisms; many fine and medium distinct red (2.5YR 5/6) and common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

Btx2—36 to 48 inches; yellowish red (5YR 5/6) sandy loam; moderate very coarse prismatic structure; very firm; compact and brittle in more than 60 percent of the volume; many fine pores; common distinct clay films in pores and on vertical faces of peds; prominent light brownish gray (10YR 6/2) clay depletions in thin seams between prisms; common fine and medium distinct red (2.5YR 4/6) and common medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btx3—48 to 66 inches; yellowish red (5YR 5/6) sandy loam; moderate very coarse prismatic structure; very firm; compact and brittle in about 50 percent of the volume; few faint clay films on vertical faces of peds; prominent light brownish gray (10YR 6/2) clay depletions in thin seams between prisms; common fine, medium, and coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

BC—66 to 84 inches; yellowish red (5YR 5/8) sandy clay loam; weak coarse subangular blocky structure; friable; few streaks and pockets of uncoated sand; many medium and coarse distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: More than 80 inches
Depth to fragipan: 20 to 38 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
- Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3

E horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
- Texture—sandy loam or fine sandy loam

Bt horizon:
- Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8
- Texture—clay loam, sandy clay loam, or loam
- Redoximorphic features—few or common iron depletions in shades of brown and gray and masses of iron accumulation in shades of yellow and brown

Btx horizon:
- Color—hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
- Texture—sandy clay loam, loam, or sandy loam
- Redoximorphic features—common or many iron depletions in shades of brown and gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon (if it occurs):
- Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
- Texture—clay loam, sandy clay loam, loam, or sandy loam
- Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Prentiss Series

Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: High stream terraces
Landform position: Convex slopes on broad, nearly level summits
Slope: 0 to 2 percent
Taxonomic class: Coarse-loamy, siliceous, semiactive, thermic Glossic Fragiudults

Prentiss soils are commonly associated on the landscape with Quitman, Savannah, and Stough soils. The somewhat poorly drained Quitman and Stough soils are in the lower, less convex positions. The Savannah soils are in positions similar to those of the Prentiss soils and are fine-loamy.

Typical Pedon

Prentiss fine sandy loam, 0 to 2 percent slopes; in an idle field about 7.75 miles north of Taylorsville; 1,225 feet north and 950 feet west of the southeast corner of sec. 12, T. 1 N., R. 8 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 56 minutes 07 seconds N. and long. 89 degrees 25 minutes 33 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.
Bt1—8 to 15 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt2—15 to 20 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.
Btx1—20 to 35 inches; yellowish brown (10YR 5/6) sandy loam; weak very coarse prismatic structure; very firm; compact and brittle in more than 70 percent of the mass; many fine pores; common faint clay films on faces of peds; distinct light gray (10YR 7/1) clay depletions in thin seams between prisms; common medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; few medium prominent yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btx2—35 to 49 inches; yellowish brown (10YR 5/4) sandy loam; moderate very coarse prismatic structure; firm; compact and brittle in more than 60 percent of the mass; many fine pores; few distinct clay films on faces of peds; common distinct light gray (10YR 7/1) clay depletions in seams between prisms; many fine and medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btx3—49 to 61 inches; light yellowish brown (10YR 6/4) sandy loam; weak very coarse prismatic structure; very firm; compact and brittle in about 45 percent of the mass; few distinct clay films on faces of peds; common fine concretions of iron and manganese oxides; common distinct light gray (10YR 7/1) clay depletions in seams between prisms; many fine and medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; common fine and medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btx4—61 to 81 inches; pale brown (10YR 6/3) sandy loam; weak very coarse prismatic structure; firm; compact and brittle in about 40 percent of the mass; few distinct clay films on faces of peds; few fine concretions of iron and manganese oxides; common distinct light gray (10YR 7/1) clay depletions in seams between prisms; many fine and medium distinct strong brown (7.5YR 5/8) and few fine prominent red (2.5YR 5/6) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to fragipan: 20 to 32 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—loam, fine sandy loam, or sandy loam
Redoximorphic features (if they occur)—iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of yellow, brown, gray, and red
Texture—loam, sandy loam, or fine sandy loam
Redoximorphic features (if they occur)—common or many iron or clay depletions in shades of brown and gray and masses of iron accumulation in shades of red, yellow, and brown

Quitman Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Flat to slightly concave slopes on broad, nearly level surfaces
Slope: 0 to 2 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Aquic Paleudults

Quitman soils are commonly associated on the landscape with Bibb, Mantachie, Prentiss, Savannah, and Stough soils. The poorly drained Bibb soils are on low parts of flood plains. The somewhat poorly drained Mantachie soils are on intermediate parts of flood plains. The moderately well drained Prentiss and Savannah soils have a fragipan and are in the slightly higher, more convex positions. The Stough soils are in positions similar to those of the Quitman soils and have more strongly expressed fragic properties.

Typical Pedon

Quitman fine sandy loam, 0 to 2 percent slopes, occasionally flooded; in a wooded area about 2.25 miles east of Pineville; 2,100 feet east and 100 feet south of the northwest corner of sec. 10, T. 3 N., R. 9 E.; USGS Louin topographic quadrangle; lat. 32 degrees 07 minutes 14 seconds N. and long. 89 degrees 21 minutes 57 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; friable; common medium and many fine roots; very strongly acid; clear smooth boundary.
E—4 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam; weak fine subangular blocky structure; friable; many fine and common medium roots; very strongly acid; clear smooth boundary.
Bt—6 to 14 inches; light yellowish brown (10YR 6/4) loam; weak medium subangular blocky structure; friable; common fine and few medium roots; few faint clay films on faces of peds; few white (10YR 8/1) clay depletions on vertical faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; many fine and medium distinct brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btx—14 to 32 inches; pale brown (10YR 6/3) loam; weak coarse prismatic structure; firm; compact and brittle in about 15 percent of the volume; few fine and medium roots; few faint clay films on faces of peds; few fine concretions of iron and manganese oxides; few distinct white (10YR 8/1) clay depletions on vertical faces of peds; many fine and medium distinct brownish yellow (10YR 6/6) and common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Btxg1—32 to 44 inches; light brownish gray (10YR 6/2) loam; weak coarse prismatic structure; friable; compact and brittle in about 15 percent of the volume; few fine and medium roots; few faint clay films on faces of peds; few fine concretions of iron and manganese oxides; few fine distinct white (10YR 8/1) clay depletions on vertical faces of peds; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Btxg2—44 to 55 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; firm; compact and brittle in about 10 percent of the volume; few faint clay films on faces of peds; few fine concretions of iron and manganese oxides; common faint white (10YR 8/1) clay depletions on vertical faces of peds; many medium distinct strong brown (7.5YR 5/8) and common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
BC—55 to 80 inches; gray (10YR 6/1) loam; weak coarse subangular blocky structure; friable; many medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to fragic properties: 10 to 20 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 3

E horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4
Texture—fine sandy loam or loam

Bt and Btx horizons:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 8
Texture—fine sandy loam, loam, or sandy clay loam
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Btxg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2; or no dominant matrix color and multicolored in shades of yellow, gray, and brown
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 to 4; or no dominant matrix color and multicolored in shades of yellow, gray, and brown
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Ruston Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Ridges
Landform position: Summits, shoulder slopes, and side slopes
Slope: 0 to 8 percent
Taxonomic class: Fine-loamy, siliceous, subactive, thermic Typic Paleudults

Ruston soils are commonly associated on the landscape with Heidel, Ora, Savannah, Smithdale, and Sweatman soils. The Heidel soils are on side slopes and are coarse-loamy. The moderately well drained Ora and Savannah soils are in positions similar to those of the Ruston soils and have a fragipan. The Smithdale soils are on side slopes and have a significant decrease in content of clay within a depth of 60 inches. The Sweatman soils are on side slopes and have a clayey argillic horizon.

Typical Pedon

Ruston fine sandy loam, 2 to 5 percent slopes; in an idle field about 3 miles east of Taylorsville; 1,375 feet west and 2,150 feet north of the southeast corner of sec. 14, T. 10 N., R. 14 W.; USGS Soso topographic quadrangle; lat. 31 degrees 50 minutes 03 seconds N. and long. 89 degrees 22 minutes 18 seconds W.

Ap—0 to 6 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear smooth boundary.
Bt1—6 to 20 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.
Bt2—20 to 28 inches; yellowish red (5YR 5/6) loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; few medium distinct reddish yellow (7.5YR 6/6) masses of iron accumulation; the masses are relict redoximorphic features; very strongly acid; gradual smooth boundary.
B/E—28 to 45 inches; 85 percent yellowish red (5YR 5/8) fine sandy loam (B); moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 15 percent light yellowish brown (10YR 6/4) fine sandy loam (E); weak fine subangular blocky structure; very friable; very strongly acid; gradual smooth boundary.
B´t1—45 to 62 inches; red (2.5YR 5/8) loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
B´t2—62 to 81 inches; red (2.5YR 5/6) loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

E horizon (if it occurs) and E part of B/E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—fine sandy loam, sandy loam, or loamy sand

Bt horizon and B part of B/E horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—clay loam, sandy clay loam, or loam
Relict redoximorphic features (if they occur)—masses of iron accumulation in shades of red and brown

B´t horizon:
Color—hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 to 8
Texture—loam, sandy clay loam, fine sandy loam, sandy loam, or clay loam
Relict redoximorphic features (if they occur)—iron depletions in shades of brown and gray and masses of iron accumulation in shades of brown

Savannah Series

Depth class: Moderately deep to a root restricting fragipan
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Ridges and high stream terraces
Landform position: Summits, shoulder slopes, and side slopes
Slope: 0 to 8 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Fragiudults

Savannah soils are commonly associated on the landscape with Ora, Prentiss, Quitman, and Stough soils. The Ora soils are in positions similar to those of the Savannah soils and have a reddish argillic horizon. The Prentiss soils are in positions similar to those of the Savannah soils and are coarse-loamy. The somewhat poorly drained Quitman and Stough soils are in the lower, less convex positions on terraces.

Typical Pedon

Savannah fine sandy loam, 2 to 5 percent slopes; in a pasture about 3.5 miles northeast of Sylvarena; 1,900 feet west and 550 feet south of the northeast corner of sec. 12, T. 2 N., R. 9 E.; USGS Louin topographic quadrangle; lat. 32 degrees 01 minute 59 seconds N. and long. 89 degrees 19 minutes 43 seconds W.

Ap—0 to 8 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.
E—8 to 12 inches; pale brown (10YR 6/3) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine roots; strongly acid; clear smooth boundary.
Bt—12 to 18 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Btx1—18 to 35 inches; yellowish brown (10YR 5/6) loam; moderate very coarse prismatic structure; very firm; compact and brittle in about 65 percent of the volume; many fine pores; common distinct clay films on faces of peds; few distinct light brownish gray (10YR 6/2) clay depletions on vertical faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions within the matrix; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Btx2—35 to 47 inches; yellowish brown (10YR 5/6) loam; moderate very coarse prismatic structure; very firm; compact and brittle in about 65 percent of the volume; common distinct clay films in pores and on faces of peds; many fine pores; distinct gray (10YR 6/1) clay depletions in thin seams between prisms; many medium distinct grayish brown (10YR 5/2) iron depletions within the matrix; common medium distinct strong brown (7.5YR 5/6) and few medium prominent red (2.5YR 4/6) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Btx3—47 to 72 inches; 40 percent light brownish gray (10YR 6/2), 30 percent brownish yellow (10YR 6/8), 20 percent strong brown (7.5YR 5/6), and 10 percent red (2.5YR 4/8) clay loam; moderate very coarse prismatic structure; firm; compact and brittle in about 60 percent of the volume; few distinct clay films on faces of peds; distinct gray (10YR 6/1) clay depletions in thin seams between prisms; areas of light brownish gray are iron depletions; areas of red, brownish yellow, and strong brown are masses of iron accumulation; very strongly acid; gradual wavy boundary.
BC—72 to 83 inches; 70 percent light brownish gray (10YR 6/2) and 30 percent strong brown (7.5YR 5/8) clay loam; weak coarse subangular

blocky structure; firm; few faint gray (10YR 6/1) clay depletions on vertical faces of peds; common medium prominent light red (2.5YR 6/6) masses of iron accumulation within the matrix; very strongly acid.

Range in Characteristics

Solum thickness: More than 50 inches
Depth to fragipan: 18 to 30 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

Ap or A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4; or hue of 10YR, value of 5, and chroma of 3 or 4

E horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4
Texture—loam or fine sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5, and chroma of 4 to 8
Texture—sandy clay loam, clay loam, or loam

Btx horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8; or no dominant matrix color and multicolored in shades of red, yellow, gray, and brown
Texture—sandy clay loam, clay loam, fine sandy loam, sandy loam, or loam
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC horizon (if it occurs):
Color—hue of 7.5YR, 10YR, or 2.5Y, value of 5 or 6, and chroma of 4 to 8; or no dominant matrix color and multicolored in shades of red, yellow, gray, and brown
Texture—sandy clay loam, clay loam, loam, fine sandy loam, or sandy loam
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Smithdale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Ridges and hills
Landform position: Side slopes and backslopes
Slope: 8 to 40 percent
Taxonomic class: Fine-loamy, siliceous, subactive, thermic Typic Hapludults

Smithdale soils are commonly associated on the landscape with Heidel, Ora, Ruston, Savannah, and Sweatman soils. The Heidel soils are in positions similar to those of the Smithdale soils and are coarse-loamy. The moderately well drained Ora and Savannah soils are on summits of ridges and have a fragipan. The Ruston soils are on broad summits and shoulders of ridges and do not have a significant decrease in clay content within a depth of 60 inches. The Sweatman soils are in positions similar to those of the Smithdale soils and have a clayey argillic horizon.

Typical Pedon

Smithdale fine sandy loam, 15 to 35 percent slopes; in a wooded area about 5.75 miles north of Mize; 1,500 feet north and 2,400 feet west of the southeast corner of sec. 8, T. 1 N., R. 7 E.; USGS Cohay topographic quadrangle; lat. 31 degrees 56 minutes 07 seconds N. and long. 89 degrees 36 minutes 06 seconds W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.
E—5 to 10 inches; yellowish brown (10YR 5/4) sandy loam; weak coarse subangular blocky structure; very friable; many fine and common medium roots; few quartz pebbles; strongly acid; gradual wavy boundary.
Bt1—10 to 23 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt2—23 to 40 inches; red (2.5YR 4/8) loam; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt3—40 to 64 inches; red (2.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; the masses of iron accumulation are relict redoximorphic features; very strongly acid; gradual wavy boundary.
Bt4—64 to 84 inches; red (2.5YR 5/8) sandy loam; weak coarse subangular blocky structure; friable;

few faint clay films on faces of peds; few rounded quartz pebbles; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 to 3

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—fine sandy loam or sandy loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—clay loam, sandy clay loam, or loam in the upper part and loam or sandy loam in the lower part
Relict redoximorphic features (if they occur)—masses of iron accumulation in shades of red and brown

Stough Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain uplands
Landform: Low stream terraces
Landform position: Slightly concave slopes on broad, nearly level surfaces
Slope: 0 to 2 percent
Taxonomic class: Coarse-loamy, siliceous, semiactive, thermic Fragiaquic Paleudults

Stough soils are commonly associated on the landscape with Adaton, Prentiss, Quitman, Savannah, and Trebloc soils. The poorly drained Adaton and Trebloc soils are in the slightly lower positions. The moderately well drained Prentiss and Savannah soils are in the higher, more convex positions. The fine-loamy Quitman soils are in positions similar to those of the Stough soils.

Typical Pedon

Stough fine sandy loam, 0 to 2 percent slopes, occasionally flooded; in a wooded area about 2.5 miles southwest of Pineville; 2,600 feet east and 1,450 feet north of the southwest corner of sec. 17, T. 3 N., R. 8 E.; USGS Louin SW topographic quadrangle; lat. 32 degrees 06 minutes 37 seconds N. and long. 89 degrees 25 minutes 55 seconds W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.
E—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam; weak fine subangular blocky structure; very friable; many fine and common medium roots; very strongly acid; clear wavy boundary.
Bt—6 to 12 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; common fine and few medium roots; few faint clay films on faces of peds; many fine and medium distinct yellowish brown (10YR 5/8) masses of iron accumulation; distinct light gray (10YR 7/2) clay depletions in thin seams between prisms; very strongly acid; gradual wavy boundary.
Btx1—12 to 23 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak very coarse prismatic structure parting to weak medium subangular blocky; friable; compact and brittle in about 20 percent of the volume; common fine and few medium roots; few faint clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; many fine and medium distinct light gray (10YR 7/2) iron depletions within the matrix; many fine and medium distinct yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.
Btx2—23 to 30 inches; yellowish brown (10YR 5/8) sandy loam; weak very coarse prismatic structure parting to weak medium subangular blocky; friable; compact and brittle in about 30 percent of the volume; few fine roots; few faint clay films on faces of peds; common fine distinct white (10YR 8/1) clay depletions on vertical faces of peds; many fine and medium distinct light brownish gray (10YR 6/2) and light yellowish brown (10YR 6/4) iron depletions within the matrix; very strongly acid; gradual wavy boundary.
Btx3—30 to 35 inches; yellowish brown (10YR 5/8) sandy loam; weak very coarse prismatic structure parting to weak medium subangular blocky; friable; compact and brittle in about 50 percent of the volume; few faint clay films on faces of peds; few fine distinct gray (10YR 6/1) clay depletions on vertical faces of peds; many

fine and medium distinct light gray (10YR 7/2) and light yellowish brown (10YR 6/4) iron depletions within the matrix; very strongly acid; gradual wavy boundary.

Btxg1—35 to 50 inches; light brownish gray (2.5Y 6/2) loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle in about 40 percent of the volume; common distinct clay films on faces of peds; few fine distinct gray (10YR 6/1) clay depletions on vertical faces of peds; many medium and coarse distinct yellowish brown (10YR 5/8) and common fine distinct light yellowish brown (10YR 6/4) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

Btxg2—50 to 62 inches; light gray (10YR 7/1) sandy clay loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle in about 35 percent of the volume; common distinct clay films on faces of peds; few fine distinct gray (10YR 6/1) clay depletions on vertical faces of peds; many medium and coarse distinct yellowish brown (10YR 5/8) and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

B´tx—62 to 69 inches; light yellowish brown (10YR 6/4) sandy clay loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle in about 30 percent of the volume; common distinct clay films on faces of peds; few fine distinct light gray (10YR 7/2) clay depletions on vertical faces of peds; many fine and medium distinct gray (10YR 6/1) iron depletions within the matrix; few medium distinct yellowish brown (10YR 5/8) masses of iron accumulation within the matrix; strongly acid; clear wavy boundary.

2Btg—69 to 80 inches; gray (10YR 6/1) clay loam; weak coarse subangular blocky structure; firm; common distinct clay films on faces of peds; few fine distinct light gray (10YR 7/2) clay depletions on faces of peds; many medium and coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches

Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
- Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 3

E horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
- Texture—fine sandy loam, loam, or silt loam

Bt horizon:
- Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6; or no dominant matrix color and multicolored in shades of gray and brown
- Texture—fine sandy loam, sandy loam, loam, or silt loam
- Redoximorphic features—iron or clay depletions in shades of gray and brown and masses of iron accumulation in shades of brown and red

Btx and B´tx horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8; or no dominant matrix color and multicolored in shades of red, gray, yellow, and brown
- Texture—fine sandy loam, sandy loam, loam, sandy clay loam, or silt loam
- Redoximorphic features—iron or clay depletions in shades of gray and brown and masses of iron accumulation in shades of red and brown

Btxg horizon (if it occurs):
- Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
- Texture—sandy loam, loam, sandy clay loam, or silt loam
- Redoximorphic features—iron or clay depletions in shades of gray and masses of iron accumulation in shades of brown and red

2Btg horizon (if it occurs):
- Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or no dominant matrix color and multicolored in shades of red, gray, and brown
- Texture—clay loam or sandy clay
- Redoximorphic features—iron or clay depletions in shades of gray and masses of iron accumulation in shades of red and brown

Sweatman Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Stratified clayey and loamy sediments
Landscape: Coastal Plain uplands

Landform: Ridges and hills
Landform position: Summits, side slopes, and backslopes
Slope: 2 to 35 percent
Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Sweatman soils are commonly associated on the landscape with Boswell, Ora, Ruston, Savannah, and Smithdale soils. The moderately well drained Boswell soils are on summits of broad ridges and on toeslopes. The moderately well drained, loamy Ora and Savannah soils are on summits of ridges. The loamy Ruston soils are on summits and shoulder slopes. The loamy Smithdale soils are in positions similar to those of the Sweatman soils.

Typical Pedon

Sweatman fine sandy loam, 5 to 8 percent slopes; in a wooded area about 0.5 mile east of Trenton; 2,400 feet east and 2,150 feet south of the northwest corner of sec. 20, T. 4 N., R. 7 E.; USGS Homewood topographic quadrangle: lat. 32 degrees 10 minutes 25 seconds N. and long. 89 degrees 36 minutes 11 seconds W.

A—0 to 4 inches; dark brown (10YR 4/3) fine sandy loam; moderate fine granular structure; friable; common fine and few medium roots; strongly acid; clear smooth boundary.
Bt1—4 to 18 inches; red (2.5YR 5/8) clay; strong medium subangular blocky structure; firm; few fine roots; few very fine pores; common faint clay films on faces of peds and in pores; very strongly acid; gradual wavy boundary.
Bt2—18 to 27 inches; red (2.5YR 5/8) clay; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; common medium prominent pale brown (10YR 6/3) iron depletions; very strongly acid; gradual wavy boundary.
BC—27 to 49 inches; 40 percent light brownish gray (2.5Y 6/2), 30 percent red (2.5YR 4/8), and 30 percent light olive brown (2.5Y 5/6) clay; weak coarse subangular blocky structure; firm; common fine flakes of mica; areas of light brownish gray are iron depletions; areas of red are masses of iron accumulation; very strongly acid; clear wavy boundary.
C1—49 to 55 inches; yellowish red (5YR 5/8) sandy loam; weak medium platy structure; friable; few fine fragments of light brownish gray (2.5Y 6/2) soft shale; few fine flakes of mica; very strongly acid; gradual wavy boundary.
C2—55 to 74 inches; stratified light reddish brown (5YR 6/4), red (2.5YR 5/8), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) loamy sand; massive, thinly bedded; friable; many fine flakes of mica; very strongly acid; gradual wavy boundary.
C3—74 to 85 inches; stratified light brownish gray (10YR 6/2) soft shale, strong brown (7.5YR 5/8) sandy loam, and red (2.5YR 5/6) sandy loam; massive, thinly bedded; firm; many fine flakes of mica; very strongly acid.

Range in Characteristics

Solum thickness: 25 to 50 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

E horizon (if it occurs):
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—loam or fine sandy loam

BE horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—none or few iron depletions in shades of brown

BC horizon:
Color—commonly no dominant matrix color and multicolored in shades of red, yellow, gray, and brown; or hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 to 8
Texture—sandy loam, silty clay loam, clay loam, clay, or silty clay
Redoximorphic features—few to many iron depletions in shades of brown and gray and masses of iron accumulation in shades of brown, red, and gray
Other features—none to common soft shale fragments

C horizon:
Color—hue of 2.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 8
Texture—sandy loam, loamy sand, sandy clay loam, loam, clay loam, or clay

Other features—none to common soft shale fragments

Trebloc Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Parent material: Loamy sediments
Landscape: Coastal Plain
Landform: Low stream terraces and flood plains
Landform position: Flat to concave slopes on nearly level surfaces
Slope: 0 to 2 percent
Taxonomic class: Fine-silty, siliceous, active, thermic Typic Paleaquults

Trebloc soils are commonly associated on the landscape with Annemaine, Cahaba, Kirkville, Stough, and Urbo soils. The moderately well drained Annemaine soils and the well drained Cahaba soils are in the higher, more convex positions. The moderately well drained Kirkville soils are on natural levees of flood plains. The somewhat poorly drained Stough soils are in the slightly higher, more convex positions. The somewhat poorly drained Urbo soils are on the lower parts of flood plains.

Typical Pedon

Trebloc silt loam, frequently flooded; in a pasture about 6.5 miles north of Taylorsville; 2,580 feet west and 2,300 feet south of the northeast corner of sec. 13, T. 1 N., R. 8 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 55 minutes 32 seconds N. and long. 89 degrees 25 minutes 52 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine and common medium roots; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in root channels; moderately acid; clear smooth boundary.

Eg1—4 to 9 inches; grayish brown (10YR 5/2) silt loam; weak coarse subangular blocky structure; friable; many fine and common medium roots; many medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in root channels; strongly acid; clear smooth boundary.

Eg2—9 to 13 inches; light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; friable; many fine and few medium roots; common fine and medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in root channels; very strongly acid; clear wavy boundary.

B/E—13 to 25 inches; 80 percent grayish brown (10YR 5/2) silty clay loam (B); weak very coarse prismatic structure parting to weak medium subangular blocky; friable; common fine roots; common distinct clay films on faces of peds; common fine concretions of iron and manganese oxides; many medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) masses of iron accumulation within the matrix; 20 percent light brownish gray (10YR 6/2) silt loam (E) in seams that are 0.75 to 3 inches wide between prisms; massive; very friable; very strongly acid; gradual irregular boundary.

Btg1—25 to 35 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; few fine roots; few distinct clay films on faces of peds; common fine concretions of iron and manganese oxides; common medium distinct yellowish brown (10YR 5/4, 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

Btg2—35 to 48 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; firm; few distinct clay films on faces of peds; common fine concretions of iron and manganese oxides; many fine and medium distinct yellowish brown (10YR 5/8) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

Btg3—48 to 64 inches; 50 percent light brownish gray (2.5Y 6/2), 25 percent light yellowish brown (10YR 6/4), and 25 percent strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine concretions of iron and manganese oxides; areas of light yellowish brown and strong brown are masses of iron accumulation; very strongly acid; gradual wavy boundary.

BC—64 to 70 inches; gray (10YR 6/1) sandy clay loam; weak coarse subangular blocky structure; friable; common fine concretions of iron and manganese oxides; many medium distinct light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.

Cg—70 to 82 inches; gray (2.5Y 5/1) sandy clay loam; massive; firm; common medium faint gray (10YR 6/1) iron depletions; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2

Eg horizon and E part of B/E horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam or fine sandy loam
Redoximorphic features—few or common masses of iron accumulation in shades of brown

Btg horizon and B part of B/E horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silt loam, silty clay loam, or clay loam
Redoximorphic features—common or many iron or clay depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

BC and Cg horizons:
Color—hue of 10YR, 2.5Y, or 5Y, value of 5 to 7, and chroma of 1 or 2
Texture—sandy clay loam, loam, clay loam, or silty clay loam
Redoximorphic features—few to many iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Una Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Parent material: Clayey fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to concave slopes in nearly level backswamps
Slope: 0 to 2 percent
Taxonomic class: Fine, mixed, active, acid, thermic Typic Epiaquepts

Una soils are commonly associated on the landscape with Ichusa, Leeper, Quitman, and Urbo soils. The somewhat poorly drained Ichusa soils are on adjacent side slopes. The somewhat poorly drained Leeper and Urbo soils are in the slightly higher, more convex positions. The somewhat poorly drained Quitman soils are on low terraces.

Typical Pedon

Una loam, in an area of Una and Urbo soils, frequently flooded; in a wooded area southwest of Sylvarena; 500 feet east and 1,750 feet south of the northwest corner of sec. 5, T. 1 N., R. 9 E.; USGS Center Ridge topographic quadrangle; lat. 31 degrees 57 minutes 24 seconds N. and long. 89 degrees 24 minutes 16 seconds W.

A1—0 to 2 inches; dark brown (10YR 3/3) loam; moderate fine and medium granular structure; friable; many fine and common medium roots; very strongly acid; clear smooth boundary.
A2—2 to 6 inches; dark brown (10YR 4/3) loam; weak medium subangular blocky structure; friable; many fine and common medium roots; many fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in root channels; very strongly acid; clear wavy boundary.
Bg1—6 to 26 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine and few medium roots; few fine concretions of iron and manganese oxides; many medium distinct yellowish brown (10YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Bg2—26 to 61 inches; gray (2.5Y 5/1) silty clay; moderate medium subangular structure; firm; few fine roots; common fine concretions of iron and manganese oxides; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Bssg—61 to 80 inches; light brownish gray (2.5Y 6/2) clay; large wedge-shaped aggregates parting to moderate fine and medium angular blocky structure; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; grooves are 0.75 to 1.5 inches wide and 0.5 to 0.75 inch deep; common fine concretions of iron and manganese oxides; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 3

Redoximorphic features—none to common masses of iron accumulation in shades of brown

Bg and Bssg horizons:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—common or many masses of iron accumulation in shades of yellow, brown, and red

Urbo Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Clayey fluvial sediments
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Flat to slightly concave slopes in nearly level backswamps
Slope: 0 to 2 percent
Taxonomic class: Fine, mixed, active, acid, thermic Vertic Epiaquepts

Urbo soils are commonly associated on the landscape with Ichusa, Kirkville, Leeper, and Una soils. The Ichusa soils are on side slopes and have a brownish argillic horizon. The moderately well drained, loamy Kirkville soils are on high parts of natural levees. The Leeper soils are in positions similar to those of the Urbo soil, are less acid, and have accumulations of calcium carbonate in the subsoil. The poorly drained Una soils are in the lower positions.

Typical Pedon

Urbo clay loam, occasionally flooded; in a field 4.5 miles northwest of Pineville; 600 feet east and 200 feet south of the northwest corner of sec. 13, T. 4 N., R. 8 E.; USGS Pineville topographic quadrangle; lat. 32 degrees 11 minutes 35 seconds N. and long. 89 degrees 26 minutes 19 seconds W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) clay loam; moderate medium granular structure; friable; many fine and common medium roots; slightly acid; clear smooth boundary.
Bw—4 to 10 inches; light olive brown (2.5Y 5/3) silty clay; moderate coarse subangular blocky structure; firm; many fine and few medium roots; common fine faint gray (10YR 5/1) iron depletions on faces of peds; strongly acid; clear wavy boundary.
Bg1—10 to 19 inches; gray (2.5Y 5/1) silty clay loam; moderate medium subangular blocky structure; firm; few medium and common fine roots; few fine concretions of iron and manganese oxides; common fine and medium distinct dark brown (10YR 4/3) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Bg2—19 to 27 inches; gray (2.5Y 5/1) silty clay loam; moderate medium subangular and angular blocky structure; firm; few fine roots; few fine concretions of iron and manganese oxides; many medium distinct strong brown (7.5YR 4/6) and dark yellowish brown (10YR 4/4) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Bg3—27 to 38 inches; gray (10YR 5/1) clay; moderate medium subangular and angular blocky structure; firm; few fine roots; few fine concretions of iron and manganese oxides; many medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation within the matrix; very strongly acid; gradual wavy boundary.
Bg4—38 to 54 inches; gray (10YR 6/1) clay; weak medium angular blocky structure; firm; few fine roots; few fine concretions of iron and manganese oxides; common fine black stains (manganese oxides) on faces of peds; many medium distinct dark yellowish brown (10YR 4/6) and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation within the matrix; strongly acid; gradual wavy boundary.
Bg5—54 to 75 inches; gray (10YR 6/1) clay loam; weak medium subangular blocky structure; firm; few fine concretions of iron and manganese oxides; common fine black stains (manganese oxides) on faces of peds; many medium and coarse distinct dark yellowish brown (10YR 4/6) masses of iron accumulation within the matrix; strongly acid; gradual wavy boundary.
Bg6—75 to 80 inches; gray (10YR 6/1) clay loam; weak coarse subangular blocky structure; firm; few fine concretions of iron and manganese oxides; many medium and coarse distinct dark yellowish brown (10YR 4/4) masses of iron accumulation within the matrix; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except for the surface layer in areas that have been limed

A or Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 3

Bw horizon (if it occurs):
- Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4
- Texture—silty clay loam, clay loam, silty clay, or clay
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of yellow and brown

Bg horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2
- Texture—silty clay loam, clay loam, silty clay, or clay
- Redoximorphic features—common or many iron depletions in shades of gray and masses of iron accumulation in shades of red, yellow, and brown

Formation of the Soils

In this section, the factors of soil formation are related to the soils in Smith County, the processes of horizon differentiation are explained, and the surface and near-surface geology of the county are described.

Factors of Soil Formation

Soil is a natural, three-dimensional body on the earth's surface that supports plants. It forms through weathering and other processes that act on deposited or accumulated geologic material. The kind of soil that forms depends on the type of parent material; the climate under which soil material has existed since accumulation; the relief, or lay of the land; the plant and animal life in and on the soil; and the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941). The relative importance of each of these factors differs from place to place. In some areas, one factor is more important; in other areas, another may dominate. A modification or variation in any of the factors results in a different kind of soil.

Climate and living organisms are the active factors of soil formation. They act on parent material and change it into a natural body that has definite characteristics. The effects of climate and living organisms are conditioned by relief, which influences surface drainage; the amount of water that percolates through the soil; the rate of erosion; and the kind of vegetation that grows on the soil. The nature of the parent material also affects the kind of soil profile that is formed. Time is needed for the parent material to change into a soil. The development of a distinct soil horizon normally requires a long period of time.

Parent Material

Parent material is the initial physical body that is changed by the other soil-forming factors over time. Generally, the younger the soil, the greater the influence of the parent material on soil properties. The nature of the parent material can be expressed in many ways in the soil profile, including color, texture, and mineralogy. These properties can be related to physical and chemical properties, such as susceptibility to erosion, shrink-swell potential, and cation-exchange capacity.

The soils in Smith County formed mainly in three kinds of parent material—loamy and clayey marine sediments that have undergone considerable weathering in place; sandy, loamy, and clayey fluvial (water-deposited) sediments on stream terraces and flood plains; and materials weathered from chalk, marl, or alkaline clays. Boswell, Freest, Heidel, Ora, Ruston, Smithdale, and Sweatman soils formed in stratified, loamy or clayey marine sediments on uplands. Adaton, Alaga, Annemaine, Cahaba, Prentiss, Quitman, Savannah, and Stough soils formed in fluvial sediments on stream terraces. Bibb, Jena, Kirkville, Leeper, Mantachie, Trebloc, Una, and Urbo soils formed in fluvial sediments on flood plains. Ichusa, Louin, and Maytag soils formed in materials weathered from chalk, marl, and alkaline clays on uplands.

Climate

The climate of Smith County is warm and humid. Summers are long and hot. Winters are short and mild, and the ground rarely freezes to a depth of more than a few inches. The climate is fairly even throughout the county and accounts for few differences between the soils. Rainfall averages about 58 inches a year. Detailed information about the climate in the county is given in the section "General Nature of the County" and in tables 1, 2, and 3.

The mild, humid climate favors rapid decomposition of organic matter and increases the rate of chemical reactions in the soil. The plentiful rainfall leaches large amounts of soluble bases and carries the less soluble fine particles downward, resulting in acid soils that have a sandy surface layer and that are low in natural fertility. The large amount of moisture and the warm temperatures favor the growth of bacteria and fungi and speed the decomposition of organic matter, resulting in soils that have a low content of organic matter.

Relief

Relief varies significantly in Smith County and generally can be related to the physiographic regions and geologic units in the county. Relief ranges from very low on the flood plains and stream terraces to very high in the dissected hills. The elevation of Smith

County ranges from 605 feet above mean sea level at the highest point to about 230 feet above at the lowest point, providing a total relief of about 375 feet (Luper, Augurarohita, and Baughman, 1972).

Relief influences the formation of soil by effecting drainage, runoff, and erosion. Soil properties that are influenced by relief include the thickness of the solum, the thickness of the A horizon, the color of the profile, the degree of horizon differentiation, and the relative wetness of the profile. The thickness of the solum is one of the properties most obviously related to relief. Soils on nearly level summits tend to have a thicker solum than that of soils on steep side slopes.

Relief also affects moisture relationships in soil. It affects the depth to ground water and the amount of water that is available for plant growth. Generally, the water table is closer to the surface in depressions than on the high parts of the landscape.

Plants and Animals

Living organisms greatly influence the processes of soil formation and the characteristics of the soils. Nutrient cycling, soil mixing, nitrogen fixing, and organic matter decomposition are accomplished by the plants and animals living on and within the soil.

Bacteria, fungi, and algae aid in the weathering of rock and in the decomposition of organic matter. Larger plants alter the soil climate in small areas and thus help to determine the soil microclimate. They also supply organic matter to the soil and transfer elements from the subsoil to the surface soil. Plant roots and animal burrows create channels through which air and water move more rapidly, thereby improving soil structure and increasing the rate of chemical reactions in the soil. Earthworms, ants, and other small invertebrates continually mix the soil, cycling nutrients and improving the infiltration of air and water.

Human activities, including clearing forests, cultivating the soil, and introducing new plants, can greatly alter the surface layer and change the soil environment. Soil development is also affected by the construction of levees and dams for flood control, the installation of drainage systems, the use of various conservation practices, and the application of fertilizers, lime, and chemicals for control of insects, diseases, and weeds.

Time

If all other factors of soil formation are equal, the degree of soil formation is in direct proportion to time. If the soil-forming factors have been active for a long time, horizon development is stronger than if these same factors have been active for a relatively short time. Some parent materials are more easily weathered than others. The rate of weathering is dependent on the mineral composition and degree of consolidation of the parent material. Soil formation is considered to begin when fresh parent material is first exposed to the other soil-forming factors. Commonly, the fresh parent material is exposed as a result of a catastrophic occurrence, such as a flood, a change in topography resulting from a geologic event, a severe episode of erosion, or human activities.

Geologically, the soils in Smith County are relatively young. The youngest soils are the alluvial soils on active flood plains along streams and rivers. These soils receive deposits of sediment and are undergoing a cumulative soil-forming process. In most cases, these young soils have weakly defined horizons, mainly because the soil-forming processes have been active for only a short time. Bibb, Jena, and Kirkville soils are examples of young soils.

Soils on the terraces along the Leaf River and other major streams are older than the soils on the flood plains but are still relatively young. Although the soils on terraces formed in material deposited by the river, they are no longer reached by frequent overflows because the river channel is now deeper. Many of these soils have relatively strong horizon development. Annemaine, Cahaba, Quitman, and Savannah soils are examples of soils on stream terraces. These soils vary in age and elevation.

Soils on uplands are generally older than soils on terraces or flood plains and range in age from young to very old. The degree of soil development depends on landscape position and composition of the parent material. Boswell, Ichusa, Ora, Ruston, and Smithdale soils are examples of soils on uplands.

Processes of Soil Horizon Differentiation

The main processes involved in the formation of soil horizons are accumulation of organic matter, leaching of calcium carbonate and other bases, reduction and transfer of iron, and formation and translocation of silicate clay minerals (Brady, 1974). These processes can occur in combination or individually, depending on the integration of the factors of soil formation.

Most soils have four main horizons. The A horizon is the surface layer. It is the horizon of maximum accumulation of organic matter. It commonly is darker than the horizons below it because of the influence of the organic matter. Organic matter has accumulated to form an A horizon in all of the soils in Smith County. The content of organic matter varies between soils because of differences in relief, wetness, and natural fertility.

The E horizon, usually called the subsurface layer, occurs in many of the soils in the county, especially those soils that are on uplands. It is the horizon of maximum loss of soluble or suspended material. It commonly is lighter in color and coarser in texture than the overlying and underlying horizons. Heidel, Ora, and Smithdale soils have both an A horizon and an E horizon. Other soils have an A horizon but do not have an E horizon. Examples are Bibb, Jena, and Leeper soils.

The B horizon, usually called the subsoil, is directly below the A or E horizon. It is the horizon of maximum accumulation of dissolved or suspended material, such as iron or clay. Soils on old, stable landforms generally have a thick, well structured B horizon. Examples are Ruston and Savannah soils. Soils on flood plains either do not have a B horizon or have a weakly developed B horizon. Examples are Bibb, Jena, Kirkville, and Una soils.

The C horizon is the substratum. It has been affected very little by the soil forming processes but is typically somewhat modified by weathering.

The chemical reduction and transfer of iron, called gleying, is evident in the wet soils in the county. Gleying results in gray colors in the subsoil and gray mottles in other horizons. The gray colors indicate the reduction and loss of iron and manganese. The horizons of some soils, such as Annemaine and Freest soils, have reddish and brownish redoximorphic features, which indicate a segregation of iron.

Leaching of carbonates and bases has occurred in most of the soils in the county. This process contributes to the development of distinct horizons and to the naturally low fertility and the acid reaction of most soils on the Coastal Plain. Some of the soils in the Jackson Prairie area formed in materials weathered from chalk, marl, and alkaline clay. Some of these soils, such as the Maytag soil, are high in natural fertility and are alkaline throughout. Others, such as the Ichusa and Louin soils, are acid in the upper part and alkaline in the lower part.

In uniform materials, natural drainage generally is closely associated with slope or relief. It generally affects the color of the soil. Soils that formed under good drainage conditions have a subsoil that is uniformly bright in color. Heidel, Ruston, and Smithdale soils are examples. Soils that formed under poor drainage conditions have grayish colors. Adaton, Bibb, and Trebloc soils are examples. Soils that formed where drainage is intermediate have a subsoil that is mottled in shades of gray, red, and brown. Louin, Mantachie, Quitman, and Stough soils are examples. The grayish colors persist even if artificial drainage is provided. The dark grayish brown colors in the upper part of the Leeper soils are assumed to be inherited from the parent material.

In steep areas, the surface soil erodes. In low areas and in depressions, soil materials commonly accumulate and add to the thickness of the surface layer. In some areas, the rate of formation of soil materials and the rate of removal of soil materials are in equilibrium.

Surface and Near-Surface Geology

Richard L. Bowen, professor, Department of Geology, University of Southern Mississippi, prepared this section.

In 1972, Luper, Augurarohita, and Baughman published both a geological map at a scale of 1:125,000 and an extensive description of the geology and mineral resources of Smith County (Luper, Augurarohita, and Baughman, 1972). Readers needing more detailed information on these topics are referred to this map and description. Much of the material presented here is excerpted from this map and description. Personal observations by the author are also included.

The soils of Smith County formed in and on surface and near-surface strata that were deposited during the Cenozoic Era. None of the strata exposed in the county are older than Eocene in age (about 40 to 50 million years old). Because these strata have never been deeply buried, they are mostly unconsolidated or only weakly indurated and thus may be easily excavated or worked by backhoes, bulldozers, and heavy farm machinery. Overall, these sedimentary layers are gently inclined, dipping southwesterly at about 20 to 50 feet per mile toward the Gulf of Mexico.

Physiography

Smith County is in the East Gulf Coastal Plain Section of the Coastal Plain physiographic province. Gently rolling to strongly dissected, hilly topography characterizes this area of the lower Coastal Plain.

The soils in the county are forming in outcrops of Tertiary- to Quaternary-aged material that consists primarily of unconsolidated sand, silt, and clay and lesser amounts of limestone, chalk, marl, siltstone, and claystone. Elevation ranges from about 230 feet above mean sea level on the flood plain along the Leaf River near the southern boundary of the county to about 605 feet on the summit of “Heater Ridge” in the northwestern part of the county (Luper, Augurarohita, and Baughman, 1972).

Smith County lies within three subdivisions of the East Gulf Coastal Plain Section: the Jackson Prairie, the Vicksburg Hills, and the Piney Woods. The Jackson

Prairie covers approximately 1.5 townships in the northeast corner of the county. This area is underlain by the Yazoo Formation. The terrain is gently rolling with a few high hills. South and southwest of the Jackson Prairie is the Vicksburg Hills subdivision. This belt is 9 to 14 miles wide, extends diagonally across the county from southeast to northwest, and is underlain by the Forest Hill Formation and the Vicksburg Group. The terrain ranges from gently rolling to hilly. The remainder of the county, about 55 to 60 percent of the total acreage, is in the Piney Woods subdivision. This area is characterized by gently rolling topography with a few high ridges capped by terrace deposits. The Piney Woods subdivision is underlain by the Catahoula Formation, the Hattisburg Formation, and the Citronelle Formation. Terraces and flood plains along the Leaf River, the Strong River, and Oakohay Creek occupy 15 to 20 percent of the Piney Woods area.

Sedimentary Units

Eight major outcrops of geologic units, ranging in age from Eocene to Recent, are identified on the geologic map of Smith County (Luper, Augurarohita, and Baughman, 1972). They are of sedimentary origin and consist of sand, silt, clay, gravel, claystone, siltstone, sandstone, marl, chalk, and limestone. From oldest to youngest, they are the Yazoo Formation of the Eocene Series; the Forest Hill Formation and the Vicksburg Group of the Oligocene Series; the Catahoula Formation and the Hattisburg Formation of the Miocene Series; the Citronelle Formation and high terrace deposits of the Pleistocene Series; and alluvium and low terrace deposits of the Holocene Series.

The Yazoo Formation, or Yazoo Clay, crops out in the northeast corner of the county. It consists primarily of blue-gray to light olive-gray, calcareous to noncalcareous, fossiliferous, glauconitic, silty clays of marine origin. The weathered zone is typically very blocky and crumbly. Only about the upper 100 feet of a total thickness of about 300 feet is exposed in the county. Fossilized bones of *Basilosaurus cetoides*, an ancient whale-like mammal, have been found in this formation. *Basilosaurus cetoides* is the State fossil of Mississippi.

The Forest Hill Formation unconformably overlies the Yazoo Clay in the northeastern part of the county. It ranges from 115 to 140 feet in thickness and trends northwest to southeast. The weathered sediments of the formation consist of fine-grained micaceous sand and silty clay with thin beds of lignite, lignitic sands, and carbonaceous clay. This lithology suggests a deltaic-type deposition.

The Vicksburg Group is identified as a rock-stratigraphic unit and unconformably overlies the Forest Hill Formation. It consists of marine units of limestone, marl, and clay and includes in ascending order the Mint Springs Marl, the Glendon Limestone, the Byram Marl, and the Buckatunna Clay. These units were not separated out on the geology map. The outcrop belt of the Vicksburg Group extends generally northwest to southeast and ranges in thickness from 120 to 150 feet in the county.

The Catahoula Formation unconformably overlies the Vicksburg Group. It occupies about 40 percent of the county, mostly in the southern and western parts. It is about 550 feet thick and consists of nonmarine sands, clays, and silts. The sands are fine- to medium-grained and are locally indurated at the surface, forming sandstone ledges. The silt and siltstones are grayish or brownish. The clays are grayish to reddish and may be lignitic and micaceous. The Catahoula Formation is the most important aquifer in the county.

The Hattisburg Formation conformably overlies the Catahoula Formation in the southwest corner of the county. The Hattisburg Formation ranges from about 80 to 100 feet in thickness and consists primarily of clay, silty clay, siltstone, and minor amounts of sand and sandstone. The clays range from grayish to reddish, and the sands are typically grayish.

The Citronelle Formation unconformably overlies all of the older formations exposed in the county except for the Yazoo Clay. The Citronelle Formation ranges up to 135 feet in thickness and consists of fine- to coarse-grained sand; chert and quartz gravel; and lenses of clay. The sand has a distinctive red to reddish-orange color. The clays are typically reddish, and the gravel, which typically occurs at the base of the Citronelle Formation, is brownish or tan.

Quaternary terrace deposits and alluvium unconformably overlie older sediments adjacent to major streams throughout the county. These deposits consist of unconsolidated sand, silt, and clay and contain minor amounts of gravel. High terrace deposits of Pleistocene age occur in the eastern and northwestern parts of the county. Alluvium and low terrace deposits of late Pleistocene age and Holocene age fill the valleys of all major streams. These terrace deposits are remnants of former flood plains that are no longer subject to flooding because the streams have incised to a lower level.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

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.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing

facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of 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.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. 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.

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.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that

part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

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.

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.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

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*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. 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.

Footslope. 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.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

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.

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.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

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.

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.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the

chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

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.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 1 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 40 percent

Classes for complex slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Gently undulating	0 to 3 percent
Undulating	2 to 8 percent
Gently rolling	5 to 15 percent
Rolling	15 to 25 percent
Steep	25 to 40 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.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

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.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at D'Lo, Mississippi)

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	55.7	31.4	43.5	78	8	64	5.35	2.74	7.63	7	0.2
February	60.3	34.3	47.3	82	15	89	5.19	2.84	7.26	6	.0
March	69.0	42.4	55.7	86	21	232	6.26	3.52	8.68	7	.0
April	77.0	50.4	63.7	89	30	417	5.54	2.26	8.31	5	.0
May	83.1	58.0	70.6	93	40	638	5.19	2.30	7.66	6	.0
June	89.4	65.2	77.3	99	50	821	3.83	1.96	5.46	6	.0
July	91.4	68.4	79.9	99	57	928	5.09	3.31	6.70	8	.0
August	91.1	67.6	79.4	98	56	910	4.51	2.74	6.10	7	.0
September	86.5	62.1	74.3	97	41	730	3.50	1.23	5.38	5	.0
October	77.7	48.3	63.0	92	29	408	3.26	.94	5.13	4	.0
November	68.6	40.6	54.6	85	20	203	4.80	2.20	7.04	6	.0
December	59.7	34.1	46.9	80	12	97	6.25	3.71	8.53	7	.0
Yearly:											
Average	75.8	50.2	63.0	---	---	---	---	---	---	---	---
Extreme	105	0	---	101	7	---	---	---	---	---	---
Total	---	---	---	---	---	5,536	58.77	49.18	67.95	74	0.2

* 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 D'Lo, Mississippi)

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. 18	Mar. 26	Apr. 11
2 years in 10 later than--	Mar. 10	Mar. 21	Apr. 6
5 years in 10 later than--	Feb. 26	Mar. 10	Mar. 29
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 6	Oct. 24	Oct. 12
2 years in 10 earlier than--	Nov. 14	Oct. 30	Oct. 17
5 years in 10 earlier than--	Nov. 28	Nov. 11	Oct. 28

Table 3.--Growing Season

(Recorded in the period 1961-90 at D'Lo, Mississippi)

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	244	219	193
8 years in 10	255	228	200
5 years in 10	275	245	212
2 years in 10	294	262	224
1 year in 10	305	271	231

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
Ad	Adaton silt loam, 0 to 2 percent slopes	398	*
Ag	Alaga loamy fine sand, 0 to 3 percent slopes, rarely flooded	458	0.1
An	Annemaine fine sandy loam, 0 to 2 percent slopes	667	0.2
Bb	Bibb fine sandy loam, frequently flooded	8,334	2.1
BoB2	Boswell loam, 2 to 5 percent slopes, eroded	3,479	0.9
BoC2	Boswell loam, 5 to 8 percent slopes, eroded	6,581	1.6
Ca	Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded	1,623	0.4
FrB	Freest fine sandy loam, 2 to 5 percent slopes	2,648	0.7
FrC	Freest fine sandy loam, 5 to 8 percent slopes	3,031	0.7
HeD	Heidel sandy loam, 8 to 15 percent slopes	1,440	0.4
HeF	Heidel sandy loam, 15 to 35 percent slopes	12,737	3.1
IcB	Ichusa silty clay loam, 2 to 5 percent slopes	6,331	1.6
IcC	Ichusa silty clay loam, 5 to 8 percent slopes	2,375	0.6
Je	Jena fine sandy loam, occasionally flooded	8,395	2.1
Kr	Kirkville fine sandy loam, occasionally flooded	10,733	2.6
Le	Leeper clay loam, occasionally flooded	1,766	0.4
LuA	Louin silty clay, 0 to 2 percent slopes	956	0.2
Ma	Mantachie silt loam, frequently flooded	606	0.1
MgC	Maytag silty clay, 1 to 8 percent slopes	1,464	0.4
OrB	Ora fine sandy loam, 2 to 5 percent slopes	12,568	3.1
OrC	Ora fine sandy loam, 5 to 8 percent slopes	6,027	1.5
Pa	Pits-Udorthents complex	938	0.2
PrA	Prentiss fine sandy loam, 0 to 2 percent slopes	1,231	0.3
QuA	Quitman fine sandy loam, 0 to 2 percent slopes, occasionally flooded	13,417	3.3
RuA	Ruston fine sandy loam, 0 to 2 percent slopes	392	*
RuB	Ruston fine sandy loam, 2 to 5 percent slopes	24,769	6.1
RuC	Ruston fine sandy loam, 5 to 8 percent slopes	27,144	6.7
SaA	Savannah fine sandy loam, 0 to 2 percent slopes	2,244	0.6
SaB	Savannah fine sandy loam, 2 to 5 percent slopes	43,277	10.6
SaC	Savannah fine sandy loam, 5 to 8 percent slopes	22,336	5.5
SB	Savannah-Boswell complex, 2 to 8 percent slopes	1,397	0.3
SdD	Smithdale fine sandy loam, 8 to 15 percent slopes	38,768	9.5
SdF	Smithdale fine sandy loam, 15 to 35 percent slopes	47,454	11.7
SR	Smithdale-Rock outcrop complex, 8 to 40 percent slopes	1,247	0.3
St	Stough fine sandy loam, 0 to 2 percent slopes, occasionally flooded	24,526	6.0
SwB	Sweatman fine sandy loam, 2 to 5 percent slopes	2,708	0.7
SwC	Sweatman fine sandy loam, 5 to 8 percent slopes	7,456	1.8
SwD	Sweatman fine sandy loam, 8 to 15 percent slopes	20,782	5.1
SwF	Sweatman fine sandy loam, 15 to 35 percent slopes	8,201	2.0
Tr	Trebloc silt loam, frequently flooded	13,600	3.3
Uo	Urbo clay loam, occasionally flooded	6,769	1.7
UU	Una and Urbo soils, frequently flooded	2,636	0.6
	Water	2,591	0.6
	Total	406,500	100.0

* Less than 0.1 percent

Table 5.--Land Capability Classes 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	Cotton lint	Corn	Soybeans	Bahiagrass	Improved bermuda-grass	Watermelons	Tomatoes
		Lbs	Bu	Bu	AUM*	AUM*	Tons	Tons
Ad Adaton	IIIw	550	70	30	8.0	---	---	---
Ag Alaga	IIIs	---	60	---	7.0	7.5	6.0	5.5
An Annemaine	IIw	800	100	40	9.0	9.5	11.0	9.0
Bb Bibb	Vw	---	---	---	---	---	---	---
BoB2 Boswell	IIIe	400	45	---	6.5	7.0	---	---
BoC2 Boswell	IVe	---	---	---	6.0	6.5	---	---
Ca Cahaba	I	800	100	40	8.5	10.0	10.0	9.0
FrB Freest	IIe	400	50	25	8.0	8.0	6.0	5.0
FrC Freest	IIIe	350	---	20	8.0	8.0	---	---
HeD Heidel	IVe	---	60	20	6.0	7.5	---	---
HeF Heidel	VIIe	---	---	---	5.0	---	---	---
IcB Ichusa	IIIe	550	---	30	8.0	---	---	---
IcC Ichusa	IVe	500	---	25	8.0	---	---	---
Je Jena	IIw	700	100	40	8.0	9.0	8.0	9.0
Kr Kirkville	IIw	700	100	40	8.0	9.0	8.0	9.0
Le Leeper	IVw	750	90	40	8.0	---	---	---
LuA Louin	IIIw	---	---	---	8.0	---	---	---
Ma Mantachie	Vw	---	---	---	8.0	---	---	---
MgC Maytag	IVe	---	75	25	6.0	---	---	---

See footnote at end of table.

Table 5.--Land Capability Classes and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Cotton lint	Corn	Soybeans	Bahiagrass	Improved bermuda-grass	Watermelons	Tomatoes
		Lbs	Bu	Bu	AUM*	AUM*	Tons	Tons
OrB--Ora	IIe	700	80	35	8.0	8.5	9.0	8.0
OrC--Ora	IIIe	600	70	30	8.0	8.5	8.0	6.0
Pa--Pits-Udorthents	VIIIs	---	---	---	---	---	---	---
PrA--Prentiss	IIw	750	85	30	8.0	8.0	8.5	8.5
QuA--Quitman	IIw	650	95	40	8.5	9.0	8.0	10.0
RuA--Ruston	I	650	80	35	9.5	10.0	11.0	10.0
RuB--Ruston	IIe	650	70	30	9.5	10.0	10.0	9.5
RuC--Ruston	IIIe	600	65	25	9.5	10.0	9.5	9.0
SaA--Savannah	IIw	700	100	35	8.5	9.0	10.0	9.5
SaB--Savannah	IIe	650	95	35	8.5	9.0	10.0	9.5
SaC--Savannah	IIIe	600	70	30	8.0	8.5	---	---
SB--Savannah-Boswell	IIIe IVe	---	80	30	8.0	8.0	8.0	8.5
SdD--Smithdale	IVe	400	55	25	7.5	8.5	---	---
SdF--Smithdale	VIIe	---	---	---	---	---	---	---
SR--Smithdale-Rock outcrop	VIIe VIIIs	---	---	---	---	---	---	---
St--Stough	IIw	725	80	25	7.5	8.0	5.0	7.0
SwB--Sweatman	IIIe	400	50	20	9.5	8.5	6.0	6.0
SwC--Sweatman	IVe	---	---	---	9.5	8.5	---	---
SwD--Sweatman	VIe	---	---	---	8.0	7.0	---	---
SwF--Sweatman	VIIe	---	---	---	---	---	---	---

See footnote at end of table.

Table 5.--Land Capability Classes and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Cotton lint	Corn	Soybeans	Bahiagrass	Improved bermuda-grass	Watermelons	Tomatoes
		Lbs	Bu	Bu	AUM*	AUM*	Tons	Tons
Tr--- Trebloc	Vw	---	---	---	6.0	---	---	---
Uo--- Urbo	IVw	700	95	35	8.0	---	---	---
UU--- Una and Urbo	Vw	---	---	---	5.0	---	---	---

* 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
Ad	Adaton silt loam, 0 to 2 percent slopes (where drained)
An	Annemaine fine sandy loam, 0 to 2 percent slopes, rarely flooded
BoB2	Boswell loam, 2 to 5 percent slopes, eroded
Ca	Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded
FrB	Freest fine sandy loam, 2 to 5 percent slopes
IcB	Ichusa silty clay loam, 2 to 5 percent slopes
Je	Jena fine sandy loam, occasionally flooded
Kr	Kirkville fine sandy loam, occasionally flooded
Le	Leeper clay loam, occasionally flooded (where drained)
OrB	Ora fine sandy loam, 2 to 5 percent slopes
PrA	Prentiss fine sandy loam, 0 to 2 percent slopes
QuA	Quitman fine sandy loam, 0 to 2 percent slopes, occasionally flooded
RuA	Ruston fine sandy loam, 0 to 2 percent slopes
RuB	Ruston fine sandy loam, 2 to 5 percent slopes
RuC	Ruston fine sandy loam, 5 to 8 percent slopes
SaA	Savannah fine sandy loam, 0 to 2 percent slopes
SaB	Savannah fine sandy loam, 2 to 5 percent slopes
SwB	Sweatman fine sandy loam, 2 to 5 percent slopes
Uo	Urbo clay loam, occasionally flooded (where drained)

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	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
Ad Adaton	8W	Slight	Moderate	Moderate	Severe	Loblolly pine Water oak Sweetgum	80 80 80	114	Loblolly pine, Shumard oak, sweetgum.
Ag Alaga	8S	Slight	Moderate	Moderate	Slight	Loblolly pine Longleaf pine Slash pine	80 70 80	114	Loblolly pine, slash pine.
An Annemaine	9W	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Slash pine Yellow-poplar Sweetgum American sycamore	90 70 80 90 80 90	129	Loblolly pine, yellow-poplar, slash pine, sweetgum.
Bb Bibb	11W	Slight	Severe	Severe	Severe	Loblolly pine Sweetgum Water oak Blackgum Yellow-poplar Atlantic white cedar	100 90 90 --- --- ---	157	Loblolly pine, sweetgum, green ash.
BoB2, BoC2 Boswell	8C	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	80 70	114	Loblolly pine, shortleaf pine.
Ca Cahaba	10A	Slight	Slight	Slight	Moderate	Loblolly pine Slash pine Shortleaf pine Yellow-poplar Sweetgum	95 91 70 --- 90	143	Loblolly pine, slash pine, sweetgum, water oak.
FrB, FrC Freest	9W	Slight	Moderate	Slight	Moderate	Loblolly pine Shortleaf pine Slash pine	90 80 85	129	Loblolly pine, slash pine.
HeD Heidel	9A	Slight	Slight	Slight	Slight	Loblolly pine Shortleaf pine Slash pine	90 72 90	129	Loblolly pine, slash pine.
HeF Heidel	9R	Moderate	Moderate	Slight	Slight	Loblolly pine Shortleaf pine Slash pine	90 72 90	129	Loblolly pine, slash pine.
IcB, IcC Ichusa	9C	Slight	Moderate	Moderate	Moderate	Loblolly pine Cherrybark oak Shumard oak Sweetgum Water oak White oak	90 90 85 90 80 80	129	Loblolly pine, cherrybark oak, Shumard oak, sweetgum.

See footnote at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
Je---------- Jena	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	157	Loblolly pine, water oak, slash pine, American sycamore, eastern cottonwood, cherrybark oak, Shumard oak.
						Sweetgum----------	90		
						Water oak----------	80		
						Southern red oak----	---		
						White oak----------	---		
						Slash pine----------	---		
Kr---------- Kirkville	11W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	100	157	Loblolly pine, eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
						Cherrybark oak------	100		
						Sweetgum----------	100		
						Water oak----------	100		
Le---------- Leeper	11W	Slight	Moderate	Moderate	Moderate	Eastern cottonwood--	110	157	Eastern cottonwood, sweetgum, green ash.
						Sweetgum----------	95		
						Green ash----------	90		
LuA---------- Louin	8C	Slight	Moderate	Moderate	Severe	Loblolly pine-------	85	114	Loblolly pine, shortleaf pine.
						Shortleaf pine------	75		
						Sweetgum----------	80		
Ma---------- Mantachie	10W	Slight	Severe	Severe	Severe	Loblolly pine-------	100	157	Loblolly pine, eastern cottonwood, cherrybark oak, green ash, sweetgum, yellow-poplar.
						Eastern cottonwood--	90		
						Cherrybark oak------	100		
						Green ash----------	80		
						Sweetgum----------	95		
						Yellow-poplar-------	95		
MgC---------- Maytag	3C	Slight	Moderate	Moderate	Slight	Eastern redcedar----	40	43	Eastern redcedar.
						Hackberry----------	---		
OrB, OrC-------- Ora	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	129	Loblolly pine, slash pine.
						Longleaf pine-------	70		
						Sweetgum----------	85		
PrA---------- Prentiss	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	129	Loblolly pine, slash pine.
						Shortleaf pine------	79		
						Sweetgum----------	90		
						Cherrybark oak------	90		
						White oak----------	80		
QuA---------- Quitman	10W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	95	143	Loblolly pine, slash pine, sweetgum, yellow-poplar.
						Slash pine----------	90		
						Sweetgum----------	93		
RuA, RuB, RuC--- Ruston	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	129	Loblolly pine, slash pine, longleaf pine.
						Slash pine----------	91		
						Longleaf pine-------	76		

See footnote at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
SaA, SaB, SaC--- Savannah	9W	Slight	Moderate	Slight	Moderate	Loblolly pine------- Longleaf pine------- Slash pine---------- Sweetgum------------	90 78 88 85	129	Loblolly pine, slash pine, sweetgum, yellow-poplar.
SB:									
Savannah------- 	9W	Slight	Moderate	Slight	Moderate	Loblolly pine------- Longleaf pine------- Slash pine---------- Sweetgum------------	90 78 88 85	129	Loblolly pine, slash pine, sweetgum, yellow-poplar.
Boswell-------- 	8C	Slight	Moderate	Slight	Slight	Loblolly pine------- Shortleaf pine------	80 70	114	Loblolly pine, shortleaf pine.
SdD------------- Smithdale	9A	Slight	Slight	Slight	Slight	Loblolly pine------- Longleaf pine------- Slash pine----------	90 69 85	129	Loblolly pine, longleaf pine, slash pine.
SdF------------- Smithdale	9R	Moderate	Moderate	Slight	Slight	Loblolly pine------- Longleaf pine------- Slash pine----------	90 69 85	129	Loblolly pine, longleaf pine, slash pine.
SR:									
Smithdale------ 	9R	Moderate	Moderate	Slight	Slight	Loblolly pine------- Longleaf pine------- Slash pine----------	90 69 85	129	Loblolly pine, longleaf pine, slash pine.
Rock outcrop.									
St-------------- Stough	9W	Slight	Moderate	Slight	Severe	Loblolly pine------- Cherrybark oak------ Slash pine---------- Sweetgum------------ Water oak-----------	90 85 86 85 80	129	Loblolly pine, slash pine, sweetgum.
SwB, SwC, SwD--- Sweatman	9C	Slight	Moderate	Slight	Slight	Loblolly pine------- Shortleaf pine------	90 73	129	Loblolly pine, shortleaf pine.
SwF------------- Sweatman	9R	Moderate	Moderate	Slight	Slight	Loblolly pine------- Shortleaf pine------	90 73	129	Loblolly pine, shortleaf pine.
Tr-------------- Trebloc	10W	Slight	Moderate	Severe	Severe	Loblolly pine------- Sweetgum------------ Water oak----------- Willow oak----------	95 90 85 80	143	Loblolly pine, green ash, Nuttall oak, Shumard oak, sweetgum.
Uo-------------- Urbo	10W	Slight	Moderate	Moderate	Moderate	Loblolly pine------- Cherrybark oak------ Green ash---------- Sweetgum------------	100 100 93 98	143	Loblolly pine, sweetgum, green ash.

See footnote at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
UU:									
Una	8W	Slight	Severe	Severe	Severe	Sweetgum	90	114	Sweetgum, green ash, Nuttall oak, water tupelo.
						Green ash	75		
						Water oak	90		
						Nuttall oak	95		
						Willow oak	90		
						Water tupelo	80		
Urbo	10W	Slight	Severe	Severe	Moderate	Loblolly pine	95	114	Loblolly pine, sweetgum, green ash.
						Green ash	93		
						Cherrybark oak	100		
						Sweetgum	100		

* Volume is expressed as the average yearly growth in cubic feet per acre per year calculated at the age of 25 years for fully stocked, unmanaged stands of loblolly pine and at the age of 30 years for fully stocked, unmanaged stands of oak and sweetgum.

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 Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ag Alaga	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: droughty.
An Annemaine	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Bb Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BoB2 Boswell	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Slight.
BoC2 Boswell	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Slight	Slight.
Ca Cahaba	Severe: flooding.	Slight	Slight	Slight	Slight.
FrB Freest	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
FrC Freest	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
HeD Heidel	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
HeF Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
IcB Ichusa	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
IcC Ichusa	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
Je Jena	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
Kr Kirkville	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
Le Leeper	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
LuA Louin	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Ma Mantachie	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
MgC Maytag	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
OrB Ora	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Moderate: droughty.
OrC Ora	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight	Moderate: droughty.
Pa: Pits	Variable	Variable	Variable	Variable	Variable.
Udorthents	Variable	Variable	Variable	Variable	Variable.
PrA Prentiss	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight	Moderate: droughty.
QuA Quitman	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
RuA Ruston	Slight	Slight	Slight	Slight	Slight.
RuB Ruston	Slight	Slight	Moderate: slope.	Slight	Slight.
RuC Ruston	Slight	Slight	Severe: slope.	Slight	Slight.
SaA Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
SaB Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
SaC Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, droughty.
SB: Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
Boswell	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Slight.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SdD---------- Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
SdF---------- Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SR:					
Smithdale----------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Rock outcrop.					
St---------- Stough	Severe: flooding, wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty, flooding.
SwB---------- Sweatman	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
SwC---------- Sweatman	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
SwD---------- Sweatman	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
SwF---------- Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Tr---------- Trebloc	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Uo---------- Urbo	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
UU:					
Una----------	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Urbo----------	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.

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 Adaton	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Ag Alaga	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
An Annemaine	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Poor.
Bb Bibb	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
BoB2 Boswell	Fair	Fair	Good	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
BoC2 Boswell	Fair	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ca Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FrB Freest	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
FrC Freest	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
HeD Heidel	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeF Heidel	Very poor.	Very poor.	Good	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
IcB Ichusa	Fair	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
IcC Ichusa	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Je Jena	Poor	Fair	Fair	Good	Good	Fair	Poor	Poor	Fair	Good	Poor.
Kr Kirkville	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Le Leeper	Good	Good	Fair	Good	Poor	Good	Fair	Good	Good	Good	Fair.
LuA Louin	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Ma Mantachie	Poor	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
MgC Maytag	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Poor	Fair	Fair	Very poor.

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
OrB--Ora	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
OrC--Ora	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Pa: Pits. Udorthents.											
PrA--Prentiss	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
QuA--Quitman	Good	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
RuA, RuB--Ruston	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RuC--Ruston	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SaA, SaB--Savannah	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
SaC--Savannah	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Poor.
SB: Savannah	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Poor.
Boswell	Fair	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SdD--Smithdale	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SdF--Smithdale	Very poor.	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SR: Smithdale	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rock outcrop.											
St--Stough	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SwB--Sweatman	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SwC, SwD--Sweatman	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SwF--Sweatman	Very poor.	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tr--Trebloc	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

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 herba-ceous plants	Hard-wood trees	Conif-erous plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life
Uo---------- Urbo	Fair	Good	Fair	Good	Fair	Good	Good	Good	Fair	Good	Good.
UU: Una----------	Poor	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Good	Good.
Urbo----------	Poor	Fair	Fair	Good	Poor	Fair	Fair	Fair	Fair	Good	Good.

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 Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Ag Alaga	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Moderate: droughty.
An Annemaine	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
Bb Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
BoB2, BoC2 Boswell	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
Ca Cahaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
FrB, FrC Freest	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
HeD Heidel	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
HeF Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
IcB, IcC Ichusa	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
Je Jena	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Kr Kirkville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
Le Leeper	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Moderate: wetness, flooding.
LuA Louin	Severe: cutbanks cave, wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
Ma Mantachie	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.

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
MgC Maytag	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
OrB Ora	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: droughty.
OrC Ora	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: droughty.
Pa: Pits	Variable	Variable	Variable	Variable	Variable	Variable.
Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
PrA Prentiss	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
QuA Quitman	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
RuA, RuB Ruston	Slight	Slight	Slight	Slight	Slight	Slight.
RuC Ruston	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
SaA, SaB Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
SaC Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
SB: Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
Boswell	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
SdD Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
SdF Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SR: Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
St Stough	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, droughty, flooding.

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
SwB Sweatman	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
SwC Sweatman	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
SwD Sweatman	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
SwF Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Tr Trebloc	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Uo Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Moderate: wetness, flooding.
UU: Una	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, flooding.
Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.

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 Adaton	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey, hard to pack.
Ag Alaga	Moderate: flooding.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
An Annemaine	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
Bb Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: small stones, wetness.
BoB2, BoC2 Boswell	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Ca Cahaba	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
FrB, FrC Freest	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
HeD Heidel	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
HeF Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
IcB, IcC Ichusa	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Je Jena	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding.	Good.
Kr Kirkville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Le Leeper	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
LuA Louin	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.

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
Ma Mantachie	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
MgC Maytag	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
OrB, OrC Ora	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Pa: Pits	Variable	Variable	Variable	Variable	Variable.
Udorthents	Variable	Variable	Variable	Variable	Variable.
PrA Prentiss	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
QuA Quitman	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Fair: too clayey, wetness.
RuA Ruston	Moderate: percs slowly.	Moderate: seepage.	Moderate: too sandy.	Slight	Slight.
RuB, RuC Ruston	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too sandy.	Slight	Slight.
SaA, SaB, SaC Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
SB: Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Boswell	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
SdD Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
SdF Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
SR: Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Rock outcrop.					

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
St Stough	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
SwB, SwC Sweatman	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
SwD Sweatman	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
SwF Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Tr Trebloc	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, wetness.
Uo Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
UU: Una	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

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 Adaton	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ag Alaga	Good	Probable	Improbable: too sandy.	Poor: too sandy.
An Annemaine	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Bb Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, wetness.
BoB2, BoC2 Boswell	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ca Cahaba	Good	Probable	Improbable: too sandy.	Fair: too clayey.
FrB, FrC Freest	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HeD Heidel	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
HeF Heidel	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
IcB, IcC Ichusa	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Je Jena	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Kr Kirkville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Le Leeper	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LuA Louin	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ma Mantachie	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
MgC Maytag	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

Table 12.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
OrB, OrC Ora	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Pa:				
Pits	Variable	Variable	Variable	Variable.
Udorthents	Variable	Variable	Variable	Variable.
PrA Prentiss	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
QuA Quitman	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
RuA, RuB, RuC Ruston	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
SaA, SaB, SaC Savannah	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
SB:				
Savannah	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Boswell	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SdD Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
SdF Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SR:				
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rock outcrop.				
St Stough	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
SwB, SwC, SwD Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SwF Sweatman	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Tr Trebloc	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Uo Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

Table 12.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
UU:				
Una	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

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 Adaton	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Ag Alaga	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty, rooting depth.
An Annemaine	Moderate: seepage.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Bb Bibb	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
BoB2, BoC2 Boswell	Moderate: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Percs slowly, slope.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
Ca Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Favorable	Favorable	Favorable.
FrB, FrC Freest	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
HeD, HeF Heidel	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
IcB, IcC Ichusa	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Je Jena	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing, flooding.	Favorable	Favorable.
Kr Kirkville	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness	Wetness	Favorable.

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
Le Leeper	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
LuA Louin	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Ma Mantachie	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
MgC Maytag	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, slow intake, percs slowly.	Percs slowly	Percs slowly.
OrB, OrC Ora	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Slope	Slope, wetness, droughty.	Erodes easily, wetness.	Erodes easily, droughty.
Pa: Pits	Variable	Variable	Variable	Variable	Variable	Variable	Variable.
Udorthents	Variable	Variable	Variable	Variable	Variable	Variable	Variable.
PrA Prentiss	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable	Wetness, droughty.	Wetness, rooting depth.	Droughty, rooting depth.
QuA Quitman	Slight	Moderate: piping, wetness.	Severe: no water.	Flooding	Wetness	Wetness, soil blowing.	Favorable.
RuA Ruston	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing	Too sandy, soil blowing.	Favorable.
RuB, RuC Ruston	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, soil blowing.	Too sandy, soil blowing.	Favorable.
SaA Savannah	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable	Wetness, droughty.	Wetness	Rooting depth.
SaB, SaC Savannah	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Slope	Slope, wetness, droughty.	Wetness	Rooting depth.

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
SB:							
Savannah	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Slope	Slope, wetness, droughty.	Wetness	Rooting depth.
Boswell	Moderate: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
SdD, SdF Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
SR:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Rock outcrop.							
St Stough	Slight	Moderate: piping, wetness.	Severe: no water.	Flooding	Wetness, droughty.	Erodes easily, wetness.	Wetness, erodes easily, droughty.
SwB, SwC Sweatman	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
SwD, SwF Sweatman	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Tr Trebloc	Slight	Severe: wetness.	Severe: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Uo Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
UU:							
Una	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.

Table 14.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated. NP means nonplastic.)

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Ad Adaton	0-6	Silt loam	ML, CL, CL-ML	A-4	100	98-100	90-100	84-100	<30	NP-10
	6-81	Silt loam, silty clay loam, silty clay.	CL, CH	A-6, A-7	100	98-100	95-100	84-100	30-52	11-30
Ag Alaga	0-6	Loamy fine sand	SM, SW-SM, SP-SM	A-2, A-1-b	100	100	40-80	10-35	<25	NP-4
	6-80	Loamy sand, loamy fine sand, fine sand.	SM, SW-SM, SP-SM	A-2	100	100	50-85	10-35	<25	NP-4
An Annemaine	0-7	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4	95-100	95-100	70-95	40-75	<20	NP-5
	7-26	Clay, clay loam, silty clay.	CL	A-6, A-7	95-100	95-100	85-100	70-98	30-50	10-25
	26-54	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	95-100	95-100	80-100	36-80	20-35	8-15
	54-88	Sandy clay loam, fine sandy loam, sandy loam.	SM, SC-SM, SC	A-2, A-4	95-100	95-100	60-90	30-50	<20	NP-10
Bb Bibb	0-10	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	95-100	90-100	60-90	30-60	<25	NP-7
	10-80	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	60-100	50-100	40-100	30-90	<30	NP-7
BoB2, BoC2 Boswell	0-2	Loam	ML, CL, CL-ML	A-4, A-6	100	100	85-100	75-95	20-35	3-12
	2-73	Clay, silty clay, silty clay loam.	CH	A-7	100	100	90-100	75-95	50-70	25-40
	73-93	Clay, silty clay.	CH	A-7	100	100	90-100	75-95	48-80	26-50
Ca Cahaba	0-5	Fine sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	<20	NP
	5-36	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	36-81	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	<20	NP
FrB, FrC Freest	0-8	Fine sandy loam	SM, CL, ML, CL-ML	A-4	100	95-100	60-90	40-70	<30	NP-8
	8-17	Loam, sandy clay loam.	CL	A-4, A-6	100	95-100	80-95	55-75	25-40	7-20
	17-81	Clay loam, clay, silty clay.	CL, CH	A-7	100	95-100	90-100	80-95	41-55	20-30
HeD, HeF Heidel	0-9	Sandy loam	SM	A-4	90-100	85-100	70-85	36-45	<30	NP-4
	9-55	Fine sandy loam, sandy loam, loam.	CL-ML, SC-SM, SM	A-4	90-100	85-100	60-85	36-55	15-22	3-7
	55-80	Sandy clay loam, fine sandy loam, loam.	CL, SC	A-4, A-6	90-100	85-100	80-95	36-70	25-35	8-15
IcB, IcC Ichusa	0-11	Silty clay loam	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-25
	11-40	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	40-80	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50

Table 14.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Je Jena	0-6	Fine sandy loam	ML, SM, CL-ML, SC-SM	A-4, A-2-4	100	100	60-85	25-55	10-28	NP-10
	6-45	Silt loam, very fine sandy loam, loam.	CL, CL-ML, SC-SM	A-4, A-2-4	100	100	55-90	25-70	15-30	5-10
	45-81	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	100	100	50-80	20-50	<20	NP-5
Kr Kirkville	0-5	Fine sandy loam	ML, SM, CL-ML, SC-SM	A-2, A-4	100	100	60-85	30-65	<20	NP-5
	5-80	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SC-SM	A-2, A-4	100	100	60-100	30-65	<20	NP-5
Le Leeper	0-6	Clay loam	CH, CL	A-7	100	100	90-100	85-95	45-55	25-35
	6-89	Clay, silty clay, clay loam.	CH	A-7	100	100	95-100	80-97	52-75	30-50
LuA Louin	0-3	Silty clay	CH, MH	A-7	100	100	90-100	85-95	45-60	20-30
	3-49	Silty clay, clay	CH	A-7	100	100	90-100	85-95	55-75	32-50
	49-82	Silty clay, clay	CH	A-7	100	100	90-100	85-95	55-75	32-50
Ma Mantachie	0-3	Silt loam	ML, CL-ML, CL	A-4	100	100	90-100	70-85	<30	NP-10
	3-82	Loam, clay loam, sandy clay loam.	CL, SC, SC-SM, CL-ML	A-4, A-6	95-100	90-100	80-95	45-80	20-40	5-15
MgC Maytag	0-6	Silty clay	CH, MH	A-7	98-100	95-100	90-100	85-98	50-70	20-35
	6-34	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	85-98	60-95	30-60
	34-82	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	75-98	60-95	30-60
OrB, OrC Ora	0-7	Fine sandy loam	SC-SM, SM, ML, CL-ML	A-4, A-2	100	95-100	65-85	30-65	<30	NP-5
	7-25	Clay loam, sandy clay loam, loam.	CL	A-6, A-4, A-7	100	95-100	80-100	50-80	25-48	8-22
	25-66	Sandy clay loam, loam, sandy loam.	CL	A-6, A-7, A-4	100	95-100	80-100	50-75	25-43	8-25
	66-84	Sandy clay loam, loam, sandy loam.	CL	A-6, A-7	100	95-100	80-98	50-60	30-49	11-30
Pa:										
Pits	0-60	Variable	---	---	---	---	---	---	---	---
Udorthents	0-60	Variable	---	---	---	---	---	---	---	---
PrA Prentiss	0-8	Fine sandy loam	SC, SC-SM, SM	A-4	100	100	65-85	36-50	<30	NP-10
	8-20	Loam, silt loam, fine sandy loam.	ML, CL, CL-ML	A-4, A-2	100	100	75-100	50-90	<30	NP-10
	20-81	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SC-SM	A-6, A-4	100	100	70-100	40-75	20-35	4-12

Table 14.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
QuA----------	0-4	Fine sandy loam	SM, ML	A-4, A-2	100	100	85-100	30-55	<20	NP-3
Quitman	4-14	Fine sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SC-SM	A-4, A-6	100	100	90-100	40-70	20-35	4-15
	14-80	Sandy clay loam, loam, clay loam.	CL, SC	A-6, A-7	100	100	90-100	40-65	25-45	11-20
RuA, RuB, RuC----	0-6	Fine sandy loam	SM, ML, CL-ML	A-4, A-2-4	100	85-100	65-85	30-55	<20	NP-7
Ruston	6-28	Sandy clay loam, loam, clay loam.	SC, CL	A-6, A-7-6	100	85-100	80-95	36-75	25-45	11-20
	28-45	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SC-SM	A-4, A-2-4	100	85-100	65-85	30-75	<27	NP-7
	45-81	Sandy clay loam, loam, clay loam.	SC, CL	A-6, A-7-6	100	85-100	80-95	36-75	25-45	11-20
SaA, SaB, SaC----	0-12	Fine sandy loam	SM, ML	A-2-4, A-4	98-100	90-100	60-100	30-65	<25	NP-4
Savannah	12-18	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	98-100	90-100	80-100	40-80	23-40	7-19
	18-83	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7, A-2	94-100	90-100	60-100	30-80	23-43	7-19
SB:										
Savannah--------	0-12	Fine sandy loam	SM, ML	A-2-4, A-4	98-100	90-100	60-100	30-65	<25	NP-4
	12-18	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	98-100	90-100	80-100	40-80	23-40	7-19
	18-83	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7, A-2	94-100	90-100	60-100	30-80	23-43	7-19
Boswell---------	0-2	Loam----------	ML, CL	A-4, A-6	100	100	85-100	75-95	20-35	3-12
	2-73	Clay, silty clay, silty clay loam.	CH	A-7	100	100	90-100	75-95	50-70	25-40
	73-93	Clay, silty clay	CH	A-7	100	100	90-100	75-95	48-80	26-50
SdD, SdF---------	0-9	Fine sandy loam	SM, SC-SM	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
Smithdale	9-39	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	39-65	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
SR:										
Smithdale-------	0-10	Fine sandy loam	SM, SC-SM	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	10-40	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	40-81	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Rock outcrop.										
St----------	0-6	Fine sandy loam	SC-SM, SM, ML, CL-ML	A-4	100	100	65-85	35-65	<25	NP-7
Stough	6-23	Loam, fine sandy loam, sandy loam.	ML, CL, CL-ML	A-4	100	100	75-95	50-75	<25	8-15
	23-69	Sandy loam, sandy clay loam, loam.	SC, SM	A-4, A-6	100	100	65-90	40-65	25-40	NP-7
	69-80	Clay loam, sandy clay loam.	CL, ML	A-4, A-6, A-7	100	100	90-100	50-80	29-49	4-15

Table 14.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
SwB, SwC, SwD, SwF---- Sweatman	0-4	Fine sandy loam	CL-ML, CL, ML	A-4	100	100	90-100	55-90	<35	NP-10
	4-27	Clay, silty clay, silty clay loam.	MH	A-7	95-100	95-100	95-100	90-95	60-80	25-40
	27-49	Clay, silty clay, loam.	MH, CL, CH	A-6, A-7	95-100	80-100	80-100	70-85	30-70	12-30
	49-85	Stratified weathered bedrock to fine sandy loam.	ML, MH	A-7	95-100	75-100	60-95	55-95	41-65	12-30
Tr---- Trebloc	0-13	Silt loam----	ML, CL-ML	A-4	100	100	85-100	60-90	<30	NP-7
	13-25	Silt loam, silty clay loam, loam.	CL	A-4, A-6	100	100	85-100	85-100	25-40	8-16
	25-82	Silty clay loam, clay, sandy clay loam.	CL	A-4, A-6, A-7	100	100	85-100	85-100	25-48	8-21
Uo---- Urbo	0-4	Clay loam----	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36
	4-80	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36
UU:										
Una----	0-6	Loam----	CL, ML, CL-ML	A-4, A-6	100	100	85-100	75-95	20-35	3-12
	6-80	Clay, silty clay loam, silty clay.	CH, CL	A-7	100	100	90-100	75-95	41-65	20-40
Urbo----	0-4	Clay loam----	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36
	4-80	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36

Table 15.--Physical and Chemical Properties of the Soils

(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	0-6	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	6-81	20-42	1.40-1.45	0.06-0.2	0.18-0.22	4.5-5.5	Moderate	0.32		
Ag	0-6	2-12	1.60-1.75	6.0-20	0.05-0.09	4.5-6.0	Low	0.10	5	.5-1
Alaga	6-80	2-12	1.60-1.75	6.0-20	0.05-0.09	4.5-6.0	Low	0.10		
An	0-7	10-20	1.30-1.55	0.6-2.0	0.12-0.16	4.5-6.5	Low	0.28	5	1-3
Annemaine	7-26	35-50	1.30-1.45	0.06-0.2	0.14-0.18	4.5-5.5	Moderate	0.37		
	26-54	20-35	1.30-1.60	0.2-0.6	0.14-0.18	4.5-5.5	Low	0.37		
	54-88	5-25	1.40-1.60	0.2-2.0	0.14-0.18	4.5-5.5	Low	0.32		
Bb	0-10	2-18	1.50-1.70	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.20	5	1-5
Bibb	10-80	2-18	1.45-1.75	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.37		
BoB2, BoC2	0-2	7-27	1.40-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.43	5	1-3
Boswell	2-73	38-60	1.30-1.60	<0.06	0.14-0.18	4.5-5.5	High	0.32		
	73-93	40-60	1.30-1.60	<0.06	0.14-0.18	4.5-7.3	High	0.32		
Ca	0-5	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low	0.24	5	1-3
Cahaba	5-36	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.28		
	36-81	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low	0.24		
FrB, FrC	0-8	3-10	1.40-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28	5	1-3
Freest	8-17	10-25	1.40-1.50	0.2-0.6	0.15-0.18	4.5-6.0	Moderate	0.32		
	17-81	27-50	1.40-1.55	0.06-0.2	0.15-0.18	4.5-7.3	High	0.28		
HeD, HeF	0-9	1-10	1.30-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20	5	.5-3
Heidel	9-55	10-18	1.30-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20		
	55-80	10-30	1.40-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20		
IcB, IcC	0-11	30-40	1.30-1.45	0.06-0.2	0.20-0.22	3.6-6.0	Moderate	0.32	5	1-3
Ichusa	11-40	36-70	1.37-1.41	0.06-0.2	0.20-0.22	3.6-5.5	High	0.32		
	40-80	40-80	1.57-1.60	<0.06	0.18-0.20	6.1-8.4	Very high	0.32		
Je	0-6	10-20	1.30-1.70	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.28	5	1-3
Jena	6-45	10-18	1.30-1.70	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	45-81	5-20	1.35-1.65	2.0-6.0	0.08-0.14	4.5-5.5	Low	0.24		
Kr	0-5	10-20	1.30-1.50	0.6-2.0	0.15-0.15	4.5-5.5	Low	0.28	5	1-3
Kirkville	5-80	10-18	1.35-1.55	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28		
Le	0-6	27-35	1.45-1.60	0.06-0.2	0.18-0.22	6.1-7.8	High	0.32	5	1-5
Leeper	6-89	35-50	1.40-1.60	<0.06	0.18-0.20	6.6-8.4	High	0.32		
LuA	0-3	40-50	1.40-1.50	0.6-2.0	0.18-0.20	4.5-5.0	Moderate	0.32	5	1-3
Louin	3-49	40-60	1.30-1.50	<0.06	0.14-0.18	4.5-5.5	Very high	0.28		
	49-82	40-70	1.50-1.55	<0.06	0.14-0.18	5.6-7.8	Very high	0.28		
Ma	0-3	10-20	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low	0.37	5	1-5
Mantachie	3-82	18-34	1.50-1.60	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.28		
MgC	0-6	40-60	1.15-1.55	0.06-0.2	0.14-0.18	6.6-8.4	High	0.32	5	1-5
Maytag	6-34	35-70	1.15-1.50	0.06-0.2	0.12-0.17	6.6-8.4	High	0.32		
	34-82	35-80	1.15-1.50	0.06-0.2	0.12-0.17	7.4-8.4	High	0.32		

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
OrB, OrC	0-7	10-18	1.45-1.55	2.0-6.0	0.10-0.13	4.5-5.5	Low	0.28	4	1-3
Ora	7-25	18-33	1.45-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.37		
	25-66	18-33	1.70-1.80	0.2-0.6	0.05-0.10	4.5-5.5	Low	0.32		
	66-84	10-35	1.65-1.75	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.37		
Pa:										
Pits	0-60	Variable	Variable	Variable	Variable	Variable	Variable			---
Udorthents	0-60	Variable	Variable	Variable	Variable	Variable	Variable			---
PrA	0-8	5-18	1.50-1.60	0.6-2.0	0.12-0.16	4.5-5.5	Low	0.28	4	1-3
Prentiss	8-20	5-18	0.80-1.50	0.6-2.0	0.12-0.16	4.5-5.5	Low	0.37		
	20-81	10-20	1.65-1.75	0.2-0.6	0.06-0.09	4.5-5.5	Low	0.24		
QuA	0-6	5-15	1.35-1.65	0.6-2.0	0.15-0.24	4.5-5.5	Low	0.28	5	1-3
Quitman	6-14	14-35	1.45-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.28		
	14-80	18-35	1.45-1.70	0.2-0.6	0.11-0.17	4.5-5.5	Low	0.28		
RuA, RuB, RuC	0-6	2-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-5.5	Low	0.28	5	1-3
Ruston	6-28	18-35	1.40-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.28		
	28-45	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.28		
	45-81	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.28		
SaA, SaB, SaC	0-12	3-16	1.50-1.60	0.6-2.0	0.13-0.16	4.5-5.5	Low	0.24	4	1-3
Savannah	12-18	18-32	1.45-1.65	0.6-2.0	0.11-0.17	4.5-5.5	Low	0.28		
	18-83	18-32	1.60-1.80	0.2-0.6	0.05-0.10	4.5-5.5	Low	0.24		
SB:										
Savannah	0-12	3-16	1.50-1.60	0.6-2.0	0.13-0.16	4.5-5.5	Low	0.24	4	1-3
	12-18	18-32	1.45-1.65	0.6-2.0	0.11-0.17	4.5-5.5	Low	0.28		
	18-83	18-32	1.60-1.80	0.2-0.6	0.05-0.10	4.5-5.5	Low	0.24		
Boswell	0-2	5-20	1.40-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.28	5	1-3
	2-73	38-60	1.30-1.60	<0.06	0.14-0.18	4.5-5.5	High	0.32		
	73-93	40-60	1.30-1.60	<0.06	0.14-0.18	4.5-7.3	High	0.32		
SdD, SdF	0-10	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-3
Smithdale	10-40	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	40-81	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
SR:										
Smithdale	0-10	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-3
	10-40	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	40-81	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Rock outcrop.										
St	0-6	5-15	1.40-1.55	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.28	5	1-4
Stough	6-23	8-18	1.45-1.50	0.2-0.6	0.07-0.11	4.5-5.5	Low	0.37		
	23-69	5-27	1.55-1.65	0.2-0.6	0.07-0.11	4.5-5.5	Low	0.37		
	69-80	27-35	1.55-1.65	0.2-0.6	0.16-0.20	4.5-5.5	Low	0.32		
SwB, SwC, SwD, SwF	0-4	5-20	1.40-1.60	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.28	5	1-3
Sweatman	4-27	35-55	1.40-1.50	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	27-49	35-55	1.40-1.55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	49-85	---	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate			
Tr	0-13	5-20	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low	0.43	5	1-5
Trebloc	13-25	20-40	1.45-1.55	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	0.37		
	25-82	20-45	1.45-1.55	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	0.37		

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
Uo	0-4	28-55	1.45-1.55	0.06-0.2	0.18-0.20	4.5-5.5	Moderate	0.28	5	1-5
Urbo	4-80	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate	0.28		
UU:										
Una	0-6	15-27	1.40-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.32	5	1-5
	6-80	28-55	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High	0.28		
Urbo	0-4	28-55	1.45-1.55	0.06-0.2	0.18-0.20	4.5-5.5	Moderate	0.28	5	1-5
	4-80	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate	0.28		

Table 16.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. 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 Adaton	D	None	---	---	0-0.5	Apparent	Dec-Apr	>60	---	High	High.
Ag Alaga	A	Rare	---	---	>6.0	---	---	>60	---	Low	Moderate.
An Annemaine	C	Rare	---	---	1.5-2.5	Apparent	Jan-Apr	>60	---	High	High.
Bb Bibb	D	Frequent	Brief	Dec-Apr	0.5-1.0	Apparent	Dec-Apr	>60	---	High	Moderate.
BoB2, BoC2 Boswell	D	None	---	---	>6.0	---	---	>60	---	High	Moderate.
Ca Cahaba	B	Rare	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
FrB, FrC Freest	C	None	---	---	1.5-2.5	Perched	Jan-Apr	>60	---	High	High.
HeD, HeF Heidel	B	None	---	---	>6.0	---	---	>60	---	Low	High.
IcB, IcC Ichusa	D	None	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	High	High.
Je Jena	B	Occasional	Very brief	Dec-Apr	>6.0	---	---	>60	---	Low	High.
Kr Kirkville	C	Occasional	Very brief	Dec-Apr	1.5-2.5	Apparent	Dec-Apr	>60	---	Moderate	High.
Le Leeper	D	Occasional	Brief	Dec-Apr	1.0-2.0	Perched	Dec-Apr	>60	---	High	Low.
LuA Louin	D	None	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	High	High.
Ma Mantachie	C	Frequent	Brief	Dec-Apr	1.0-1.5	Apparent	Dec-Apr	>60	---	High	High.
MgC Maytag	D	None	---	---	>6.0	---	---	>60	---	High	Low.
OrB, OrC Ora	C	None	---	---	2.0-3.5	Perched	Jan-Apr	>60	---	Moderate	High.
Pa:											
Pits	---	None	---	---	---	---	---	--	---	Variable	Variable.
Udorthents	---	None	---	---	---	---	---	--	---	Variable	Variable.
PrA Prentiss	C	None	---	---	2.0-2.5	Perched	Jan-Apr	>60	---	Moderate	High.
QuA Quitman	C	Occasional	Brief	Dec-Apr	1.5-2.0	Perched	Jan-Apr	>60	---	High	Moderate.

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			
RuA, RuB, RuC—Ruston	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
SaA, SaB, SaC—Savannah	C	None	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	Moderate	High.
SB:											
Savannah	C	None	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	Moderate	High.
Boswell	D	None	---	---	>6.0	---	---	>60	---	High	Moderate.
SdD, SdF—Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
SR:											
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Rock outcrop	---	None	---	---	>6.0	---	---	0	Soft	---	---
St—Stough	C	Occasional	Brief	Dec-Apr	1.0-1.5	Perched	Jan-Apr	>60	---	Moderate	High.
SwB, SwC, SwD, SwF—Sweatman	C	None	---	---	>6.0	---	---	>60	---	High	High.
Tr—Trebloc	D	Frequent	Brief	Dec-Apr	0.5-1.0	Apparent	Dec-Apr	>60	---	High	High.
Uo—Urbo	D	Occasional	Brief	Dec-Apr	1.0-2.0	Perched	Dec-Apr	>60	---	High	High.
UU:											
Una	D	Frequent	Brief	Dec-Apr	0.5-1.0	Perched	Dec-Apr	>60	---	High	High.
Urbo	D	Frequent	Brief	Dec-Apr	1.0-2.0	Perched	Dec-Apr	>60	---	High	High.

Table 17.--Physical Analyses of Selected Soils

(The selected soils are the typical pedons for the series in Smith County. For the description and location of the pedons, see the section "Soil Series and Their Morphology." Analyses by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.)

Soil name and sample number	Horizon	Depth	Particle-size distribution							
			Very coarse sand (1 to 2 mm)	Coarse sand (0.5 to 1 mm)	Medium sand (0.25 to 0.5 mm)	Fine sand (0.1 to 0.25 mm)	Very fine sand (0.05 to 0.1 mm)	Total sand (0.05 to 2 mm)	Silt (0.002 to 0.05 mm)	Clay (less than 0.002 mm)
		In	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
Ichusa [1]:	A	0-4	0.3	1.6	2.4	2.7	1.4	8.4	55.0	36.6
(S89-MS-129-003)	AB	4-11	0.7	3.2	4.2	3.6	1.6	13.3	57.5	29.2
	Btss1	11-31	0.5	1.5	2.3	2.2	0.9	7.4	36.5	56.1
	Btss2	31-40	0.2	1.0	1.5	1.5	0.7	4.9	26.2	68.9
	Bkss1	40-53	0.3	0.8	1.4	1.5	0.7	4.7	23.9	71.4
	Bkss2	53-80	0.1	0.2	0.4	0.5	0.7	1.9	18.1	80.0
Louin [2]:	A	0-3	0.1	0.3	1.0	2.2	1.1	4.7	51.4	43.9
(S89-MS-129-004)	Bt	3-14	0.3	0.4	0.7	0.7	0.5	2.6	36.7	60.7
	Btss	14-23	0.1	0.4	0.7	0.7	0.5	2.4	38.2	59.4
	Bssg	23-49	0.1	0.3	0.4	0.5	0.3	1.6	29.4	69.0
	Bkss	49-70	0.1	0.3	0.6	0.8	0.6	2.4	31.3	66.3
Maytag [2]:	Ap	0-6	0.6	1.8	2.7	3.2	2.1	10.4	42.6	47.0
(S89-MS-129-005)	AB	6-11	0.9	1.4	1.1	1.8	1.8	7.0	45.4	47.6
	Bkss1	11-17	0.1	0.2	0.5	1.1	1.4	3.3	34.3	62.4
	Bkss2	17-29	0.2	0.3	0.4	0.8	1.2	2.9	31.2	65.9
	Bkss3	29-34	0.1	0.2	0.5	1.3	1.7	3.8	56.9	39.3
	Bkss4	34-52	0.0	0.1	0.4	1.5	1.4	3.4	19.4	77.2
	Bkss5	52-68	0.1	0.2	0.6	2.7	3.1	6.7	26.9	66.4
Quitman [3]:	A	0-4	0.1	0.4	7.2	32.0	13.0	52.7	38.5	8.8
(S89-MS-129-002)	E	4-6	0.1	0.5	7.1	32.6	13.8	54.1	36.8	9.1
	Bt	6-14	0.1	0.4	6.3	29.9	13.2	49.9	35.7	14.4
	Btx	14-32	0.0	0.4	5.5	26.9	11.8	44.6	35.3	20.1
	Btxg1	32-44	0.0	0.3	5.1	25.7	11.3	42.4	34.1	23.5
	Btxg2	44-55	0.0	0.3	5.6	26.2	10.9	43.0	34.0	23.0
	BC	55-80	0.0	0.3	6.3	27.4	10.9	44.9	35.0	20.1
Trebloc:	Ap	0-4	0.9	0.4	1.4	17.6	5.9	26.2	59.9	13.9
(S93-MS-129-001)	Eg1	4-9	0.2	0.4	1.1	19.1	6.7	27.5	58.1	14.4
	Eg2	9-13	0.1	0.3	0.8	18.7	6.1	26.0	60.6	13.4
	B/E	13-25	0.2	0.3	0.5	12.3	3.9	17.2	43.9	38.9
	Btg1	25-35	0.1	0.3	0.6	14.7	4.7	20.4	41.4	38.2
	Btg2	35-48	0.1	0.3	0.9	17.1	5.6	24.0	42.5	33.5
	Btg3	48-64	0.1	0.5	1.1	23.6	7.3	32.6	41.4	26.0
	BC	64-70	0.1	0.3	0.9	38.2	7.6	47.1	27.6	25.3
	Cg	70-82	0.1	0.1	0.4	42.8	7.4	50.8	24.8	24.4

[1] Reaction in the 10- to 20-inch layer of this pedon is slightly higher than is definitive for the Dystruderts great group.

[2] The content of clay in the control section of this pedon is slightly higher than is definitive for the series.

[3] The content of clay in the control section of this pedon is slightly lower than is definitive for the series.

Table 18.--Chemical Analyses of Selected Soils

(The selected soils are the typical pedons for the series in Smith County. For the description and location of the pedons, see the section "Soil Series and Their Morphology." Analyses by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.)

Soil name and sample number	Horizon	Depth	Extractable cations				Extractable acidity	Sum of cations	Base saturation	Reaction
			Ca	Mg	K	Na				
		In	-----Milliequivalents per 100 grams of soil-----						Pct	pH
Ichusa [1]:	A	0-4	15.5	3.8	0.3	0.1	23.1	42.8	46.0	5.0
(S89-MS-129-003)	AB	4-11	8.3	2.3	0.1	0.1	11.7	22.5	48.0	5.1
	Btss1	11-31	15.9	4.6	0.3	0.4	16.8	38.0	55.8	5.1
	Btss2	31-40	28.3	7.5	0.5	0.8	10.5	47.6	77.9	5.0
	Bkss1	40-53	35.9	8.9	0.4	1.4	4.7	51.3	90.8	6.2
	Bkss2	53-80	49.1	9.5	0.9	1.9	1.5	62.9	97.6	7.6
Louin [2]:	A	0-3	28.8	5.0	0.5	0.1	17.7	52.1	66.0	5.5
(S89-MS-129-004)	Bt	3-14	18.2	5.0	0.4	0.1	18.1	41.8	56.7	4.9
	Btss	14-23	14.6	4.8	0.3	0.2	19.6	39.5	50.3	5.0
	Bssg	23-49	30.2	6.8	0.4	0.8	9.7	47.9	79.7	4.8
	Bkss	49-70	38.7	7.1	0.4	1.6	3.0	50.8	94.1	6.6
Quitman [3]:	A	0-4	5.9	0.6	0.2	0.0	11.9	18.6	36.0	4.5
(S89-MS-129-002)	E	4-6	0.6	0.3	0.1	0.0	5.4	6.4	15.6	4.5
	Bt	6-14	2.1	0.7	0.1	0.0	6.3	9.2	31.5	4.8
	Btx	14-32	2.4	0.9	0.2	0.0	8.2	11.7	29.9	4.7
	Btxg1	32-44	2.7	1.0	0.2	0.1	9.7	13.7	29.2	4.7
	Btxg2	44-55	3.1	1.2	0.1	0.1	8.9	13.4	33.5	4.6
	BC	55-80	3.3	1.3	0.1	0.2	7.4	12.3	39.8	4.8
Maytag [2]:	Ap	0-6	50.2	1.7	0.6	0.1	2.6	55.2	95.3	7.6
(S89-MS-129-005)	AB	6-11	45.4	1.3	0.3	0.1	0.7	47.8	98.5	7.9
	Bkss1	11-17	46.9	1.8	0.3	0.1	0.4	49.5	99.1	8.0
	Bkss2	17-29	47.1	2.3	0.4	0.1	1.4	51.3	97.2	7.9
	Bkss3	29-34	32.3	1.9	0.3	0.2	0.0	34.7	100.0	8.1
	Bkss4	34-52	62.4	4.5	0.9	0.9	0.0	68.7	100.0	7.6
	Bkss5	52-68	47.7	5.5	0.8	1.2	0.0	55.2	100.0	7.7
Trebloc:	Ap	0-4	5.3	0.5	0.1	0.3	5.3	11.5	54	5.7
(S93-MS-129-001)	Eg1	4-9	3.5	0.2	0.1	0.3	3.6	7.7	53	5.4
	Eg2	9-13	1.1	0.2	0.1	0.4	4.5	6.3	29	4.9
	B/E	13-25	2.1	0.9	0.1	1.4	14.9	19.4	23	4.9
	Btg1	25-35	1.8	0.9	0.1	1.7	16.2	20.7	22	4.8
	Btg2	35-48	1.2	0.8	0.1	1.8	14.3	18.2	21	4.9
	Btg3	48-64	1.2	0.7	0.1	1.7	12.4	16.1	23	5.1
	BC	64-70	1.0	0.6	0.1	1.2	10.1	13.0	22	5.1
	Cg	70-82	1.0	0.6	0.1	1.2	9.9	12.8	23	5.5

[1] Reaction in the 10- to 20-inch layer of this pedon is slightly higher than is definitive for the Dystruderts great group.

[2] The content of clay in the control section of this pedon is slightly higher than is definitive for the series.

[3] The content of clay in the control section of this pedon is slightly lower than is definitive for the series.

Table 19.--Classification of the Soils

Soil name	Family or higher taxonomic class
Adaton	Fine-silty, mixed, active, thermic Typic Endoaqualfs
Alaga	Thermic, coated Typic Quartzipsamments
Annemaine	Fine, mixed, semiactive, thermic Aquic Hapludults
Bibb	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Boswell	Fine, mixed, active, thermic Vertic Paleudalfs
Cahaba	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Freest	Fine-loamy, siliceous, active, thermic Aquic Paleudalfs
Heidel	Coarse-loamy, siliceous, subactive, thermic Typic Paleudults
Ichusa	Fine, smectitic, thermic Aquic Dystruderts
Jena	Coarse-loamy, siliceous, active, thermic Fluventic Dystrochrepts
Kirkville	Coarse-loamy, siliceous, active, thermic Fluvaquentic Dystrochrepts
Leeper	Fine, smectitic, nonacid, thermic Vertic Epiaquepts
Louin	Fine, smectitic, thermic Aquic Dystruderts
Mantachie	Fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts
Maytag	Fine, smectitic, thermic Oxyaquic Hapluderts
Ora	Fine-loamy, siliceous, semiactive, thermic Typic Fragiudults
Prentiss	Coarse-loamy, siliceous, semiactive, thermic Glossic Fragiudults
Quitman	Fine-loamy, siliceous, semiactive, thermic Aquic Paleudults
Ruston	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Savannah	Fine-loamy, siliceous, semiactive, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Stough	Coarse-loamy, siliceous, semiactive, thermic Fragiaquic Paleudults
Sweatman	Fine, mixed, semiactive, thermic Typic Hapludults
Trebloc	Fine-silty, siliceous, active, thermic Typic Paleaquults
Udorthents	Typic Udorthents
Una	Fine, mixed, active, acid, thermic Typic Epiaquepts
Urbo	Fine, mixed, active, acid, thermic Vertic Epiaquepts

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