United States Department of Agriculture

Natural Resources Conservation Service

In Cooperation with Alabama Agricultural Experiment Station and the Alabama Soil and Water Conservation Committee

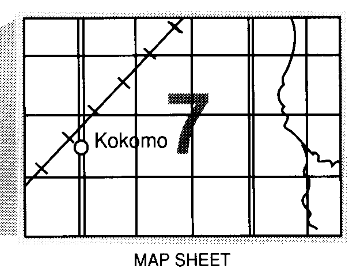
Soil Survey of Marengo County, Alabama

How to Use This Soil Survey

General Soil Map

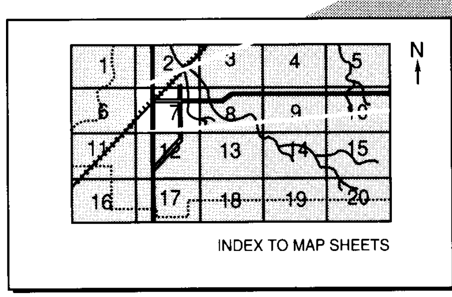
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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



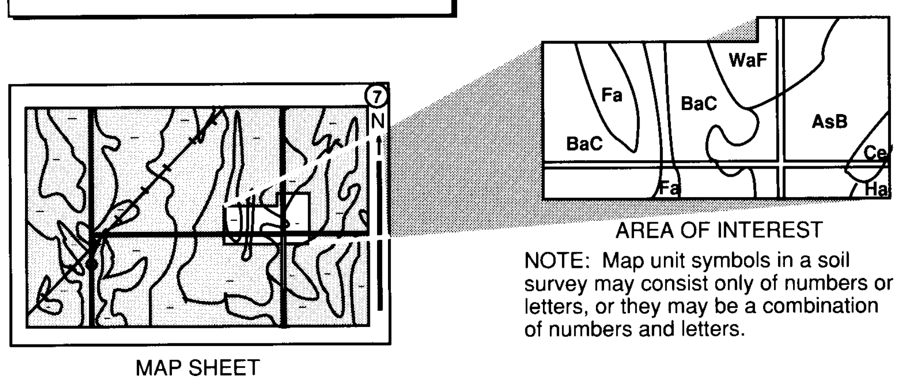
Detailed Soil Maps

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



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

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



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

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

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service and the Alabama Agricultural Experiment Station, the Alabama Cooperative Extension System, the Alabama Soil and Water Conservation Committee, and the Alabama Department of Agriculture and Industries. The survey is part of the technical assistance furnished to the Marengo 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.

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Cover: A herd of Charolais cattle grazing bahiagrass pasture in an area of Bama fine sandy loam, 0 to 2 percent slopes. This soil is classified as prime farmland and is well suited to pasture and cultivated crops.

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

Contents

Issued November 2001

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 System.

Robert N. Jones
State Conservationist
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Soil Survey of Marengo County, Alabama

By Robert M. Beaty, Natural Resources Conservation Service

Fieldwork by Robert M. Beaty, Shirley J. Brown, Herbert L. Ross, Frank Stiff, Eric Thompson, and Anthony Wallace, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Alabama Agricutural Experiment Station and Alabama Soil and Water Conservation Committee

Marengo County is in the west-central part of Alabama (fig. 1). It is bounded on the north by Hale and Greene Counties; on the east by Perry, Dallas, and Wilcox Counties; on the south by Clarke County; and on the west by Sumter and Choctaw Counties. The Tombigbee River serves as the western boundary, and the Black Warrior River serves as the boundary between Marengo County and Greene County. Linden, the county seat, is near the center of the county. It is about 85 miles west of Montgomery.

The total area of Marengo County is 629,070 acres. About 628,350 acres consists of land areas and small areas of water, and about 720 acres consists of large areas of water in the form of lakes and rivers.

Marengo County is mostly rural, and it had a population of 22,650 in 1990 *(2)*. Demopolis, the largest city in the county, had a population of about 9,800 in 1990 *(2)*. The main communities in the county are Demopolis, Linden, Thomaston, Dayton, Faunsdale, Sweet Water, and Dixons Mill.

Most of the acreage in the county is used as woodland; however, a significant acreage is used for pasture, hay, and cultivated crops.

Marengo County lies within the Coastal Plain province and includes parts of five distinct physiographic regions—the Blackland Prairie, the Chunnennuggee Hills, the Flatwoods, the Southern Red Hills, and the river terraces and flood plains *(13)*.

The Blackland Prairie makes up about 120,000 acres of the northern part of the county. It is used mostly for pasture, hay, and cultivated crops and for the production of catfish. The landscape is mostly nearly level to moderately sloping, and it has little relief. Elevation ranges from 120 to 210 feet. The soils range from shallow to very deep, and they developed in materials weathered from soft limestone (chalk) and clayey sediments. The soils are dominantly clayey. They range from very strongly acid to moderately alkaline and from well drained to poorly drained.

The Chunnennuggee Hills occupy about 55,000 acres between the Blackland Prairie and the Flatwoods regions of Marengo County. Most areas are used for woodland. The landscape is highly dissected, hilly topography that has a maximum relief of about 100 feet. Elevation ranges from about 180 to 330 feet. The soils are deep to very deep, and they developed in unconsolidated loamy, sandy, and clayey sediments. They range in texture from sandy to clayey and are acid in reaction. Most of the soils in the uplands are well drained or moderately well drained.

The Flatwoods occupies about 82,000 acres of Marengo County. It forms a narrow belt extending across the central part of the county in an east-west direction from Myrtlewood to the Wilcox County line. Most areas are used for woodland. A small acreage is used for pasture, hay, and cultivated crops. The landscape is mostly nearly level to moderately sloping, and it has little relief. The elevation ranges from 140 to 220 feet. The soils are deep, and they developed in unconsolidated clayey sediments and shale. They are clayey and are acid in reaction. Most of the soils are somewhat poorly drained or poorly drained.

The Southern Red Hills occupies about 180,000 acres in the southern part of the county. Most areas are wooded. A small acreage is used for pasture and hay. The landscape ranges from broad, nearly level

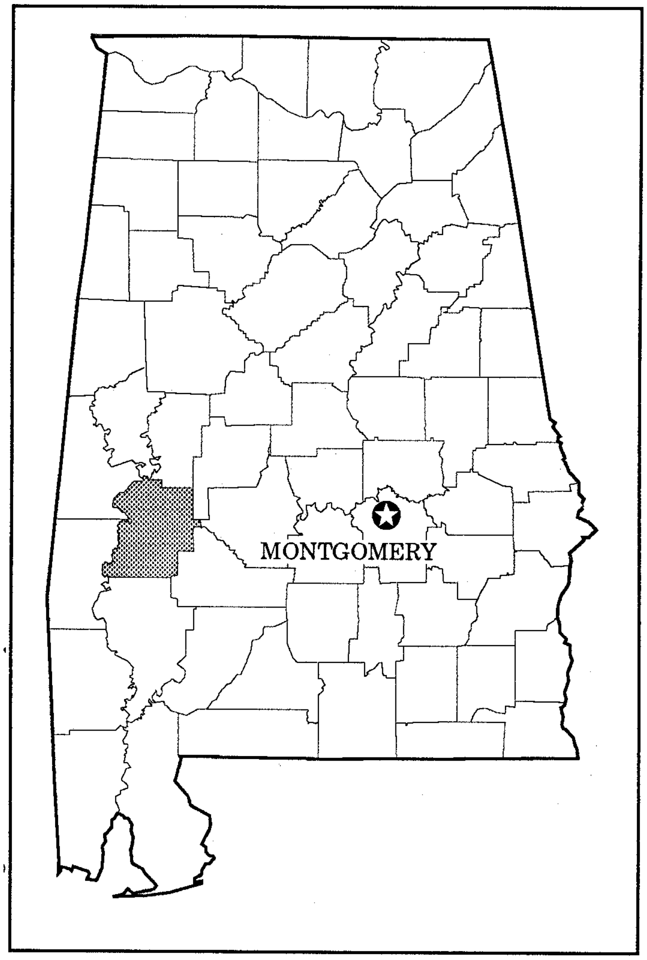

Figure 1.—Location of Marengo County in Alabama.

ridgetops to highly dissected, hilly topography. The elevation ranges from about 180 to 425 feet. The soils are very deep, and they developed in unconsolidated, loamy, sandy, and clayey sediments. They range in texture from sandy to clayey and are acid in reaction. Most of the soils in the uplands are well drained or somewhat excessively drained.

The river terraces and associated flood plains make up about 192,000 acres of Marengo County, mostly along the Tombigbee River and other major streams. Most areas of terraces are used for cultivated crops, pasture, or hay. Most areas of the flood plains support hardwood forests. The landscape consists of a series of low to high, nearly level to gently sloping terraces and level to gently undulating flood plains that have little relief. The soils are very deep, and they developed in stratified, loamy and clayey alluvium. They range in texture from loamy to clayey and range from acid to alkaline in reaction. The soils range from well drained to poorly drained. The soils on flood plains and low terraces are subject to flooding.

This soil survey updates the earlier survey of Marengo County, published in 1923 *(14)*. It provides additional information and larger maps, which show the soils in greater detail.

General Nature of the County

This section provides general information about the survey area. It describes the early history, agriculture, transportation facilities, water resources, mineral resources, surface geology, and climate.

Early History

Marengo County was created by an act of the territorial legislatures of Alabama on February 6, 1818. It was formed from territory acquired from the Choctaw Indians in the treaty of October 24, 1816. The county boundaries originally extended as far north as Tuscaloosa County, but the boundaries were modified by acts of the legislatures in 1866, when the present boundaries were created. The county was named by Judge Abner Lipscomb as a compliment to the French settlers of Demopolis and to commemorate Napoleon's victory over the Austrian armies at Marengo in 1800 *(13, 14)*.

A few settlers were in the area before 1816, but the first notable settlement is attributed to a group of French refugees who purchased the land in the vicinity of present-day Demopolis in 1818. The French settlers cleared the land and unsuccessfully tried to cultivate olives and grapes. The settlers did not adapt well to the rigors of pioneer life, and they eventually sold the land to newcomers, mostly from North Carolina, Georgia, Tennessee, and Virginia, who were more accustomed to the hardships of pioneer life. Linden was settled by the French shortly after the founding of Demopolis and was first named Screamersville. It became the county seat on December 13, 1819, and has held that position continuously, except for a short period in the 1860's when the county seat was moved to Demopolis *(13, 14)*.

Agriculture

Agriculture has always been important to the economy of Marengo County. In recent years, the acreage of cultivated crops has gradually decreased, and the acreage used for improved pasture, pine woodland, and catfish ponds has increased. Currently, about 15,000 acres is used for cultivated crops, and about 130,000 acres is used for pasture and hay *(12)*. The major crops are corn, cotton, soybeans, and grain sorghum. Specialty crops include watermelon, sweet potatoes, sweet corn, okra, peas, sod, and alfalfa. The production of pond-raised catfish has become economically important, especially in the Blackland Prairie area. The acreage of ponds continues to steadily increase. The production of beef and dairy cattle is also important. Timber and associated products are an important part of the agricultural resources in Marengo County. Large acreages of loblolly pine are in the central and southern parts of the county.

Transportation Facilities

The major highways that provide access through Marengo County include U.S. Highway 80, which runs east-west through Demopolis; U.S. Highway 43, which runs north-south through Demopolis and Linden; Alabama Highway 25, which runs north-south through Faunsdale, Dayton, and Thomaston; Alabama Highway 28, which runs east-west through Linden and Thomaston; Alabama Highway 69, which runs west and south from Linden; and Alabama Highway 10, which runs east-west through Sweet Water and Dixons Mill. Numerous other hard-surface and gravel county roads provide access throughout the county.

Marengo County is served by two railroads, which provide freight services through Demopolis and Linden. Daily passenger and parcel service is provided by major bus services. Municipal airports near Demopolis and Linden serve small private and commercial aircraft. The Tombigbee River is navigable throughout its length in Marengo County, and port facilities are available at Demopolis.

Water Resources

Marengo County has an adequate, although limited, amount of surface water suitable for domestic and recreational uses. The Tombigbee River, which forms the western boundary of the county, and the Black Warrior River, near Demopolis, provide large areas of open water suitable for fishing, swimming, and boating. Other major streams in the county include Chickasaw Bogue, Powell, Dry, Double, Watkins, Turkey, Beaver, Horse, and Sweetwater Creeks. These creeks, along with numerous small lakes and ponds, provide water for livestock, wildlife, and recreational uses.

The Tombigbee River serves as a dependable source of water for municipal uses in the Demopolis area. Adequate water for municipal, industrial, or irrigation uses is available from shallow aquifers that underlie most parts of the county. Deep wells are necessary to obtain suitable water in the Blackland Prairie area. Artesian wells are common on the terraces adjacent to the Tombigbee River, and springs are common in the uplands.

Mineral Resources

Economically important minerals in Marengo County include sand, gravel, soft limestone (chalk), and lignite. Sand and gravel are present in terrace deposits along the major streams and in the Tuscahoma Sand and Clayton Formations in the uplands. Extensive deposits of soft limestone (chalk) are in the northern part of the county. Current mining operations near the city of Demopolis produce limestone used in the manufacture of cement *(8)*. The limestone or chalk is also used as a source of agricultural lime and as a soil stabilizer. Extensive deposits of lignite coal occur in the southeastern part of the county near Lamison, but they have not been mined *(9)*.

Surface Geology

The geologic units exposed in Marengo County range in age from Late Cretaceous to Recent. Formations that crop out in the county include the Demopolis Chalk, the Ripley Formation, and the Prairie Bluff Chalk (Selma Group) of the Upper Cretaceous series; the Clayton, Porters Creek, and Naheola Formations (Midway Group) of the Paleocene series; the Nanafalia Formation and the Tuscahoma Sand (Wilcox Group) of the Eocene series; terrace deposits of Pleistocene age; and alluvium of Recent age *(13)*.

The Demopolis Chalk is the oldest geologic unit exposed in Marengo County. It crops out in the northern part of the county and is 440 to 485 feet thick. It is massive to thinly bedded, light gray and fossiliferous. The soils that formed in this material include the Demopolis, Sumter, Faunsdale, and Watsonia soils.

The Ripley Formation overlies the Demopolis Chalk and crops out in a northwestward-trending belt, 4 to 8 miles wide, north of Linden and Thomaston. It is 150 to 225 feet thick and consists of light gray to pale olive sand, sandy calcareous clay, and thin beds of calcareous, fossiliferous sandstone. The Prairie Bluff Chalk crops out in a narrow belt at the southern margin of the Ripley Formation. It is not differentiated from the Ripley Formation on the geologic map. It is less than 10 feet thick in Marengo County and consists of bluish-gray chalk and chalky clay. The soils that formed in these materials include the Brantley, Luverne, Okeelala, Oktibbeha, Searcy, and Subran soils.

The Clayton Formation is the oldest geologic unit of Tertiary Age in Alabama. It overlies the Prairie Bluff Chalk and crops out in a narrow belt through Thomaston and Linden. It is about 30 feet thick and consists of sandy chalk and calcareous, glauconitic clayey sand. It is not separated from the Porters Creek Formation on the geologic map. The soils that formed in these materials include the Demopolis, Sumter, Oktibbeha, and Watsonia soils.

The Porters Creek Formation crops out in a northwestward-trending belt, about 5 to 8 miles wide, in the central part of the county. It consists of massive, gray marine clay and clayey shale that have an average thickness of about 300 feet. The clays are very finely micaceous, have a distinct conchoidal fracture, and are sparsely fossiliferous. The soils that formed in this material include the Consul and Wilcox soils.

The Naheola Formation unconformably overlies the Porters Creek Formation and crops out in a belt about 3 to 5 miles wide that extends in an east-west direction through Rembert and Octagon. It ranges in thickness from 190 to 210 feet and consists of laminated silty clay, fine sand, glauconitic sand, and lignite. The soils that formed in this material include the Halso, Luverne, and Smithdale soils.

The Nanafalia Formation unconformably overlies the Naheola Formation and crops out in a belt about 2 to 4 miles wide that extends in an east-west direction south of Beaver Creek. It ranges from 80 to 120 feet thick and is divided into three distinct members—the Gravel Creek sand member at the bottom, the “Ostrea thirsae beds” in the middle, and the Grampian Hills member at the top. The soils that formed in this material include the Halso, Luverne, Smithdale, Boykin, and Wadley soils.

The Tuscahoma Sand crops out in the southern part of the county and averages about 400 feet in thickness. It consists of laminated to thin-bedded gray clay and fine sand, fine- to coarse-grained sand that is crossbedded, and fossiliferous greensand marl. The soils that formed in this material include the Luverne, Boykin, Smithdale, and Wadley soils.

High terrace deposits overlie the older formations that are adjacent to valleys of the Tombigbee River and other major streams. They range in thickness from 10 to 60 feet. They consist of poorly sorted deposits of reddish brown, yellowish red, and gray gravel, sand, silt, and clay. The soils that formed in this material include the Bama, Lucedale, Savannah, Bonneau, and Smithdale soils.

Alluvial deposits of Recent age and low terrace deposits are in stream valleys throughout the county. They overlie older geologic units and are generally 1 to 30 feet thick. They consist of deposits of yellowish gray and light gray sand, gravel, clay, and silt. The Bibb, Iuka, Mooreville, Mantachie, Sucarnoochee, Houlka, Riverview, and Urbo soils are on active flood plains. The Bigbee, Cahaba, Chrysler, Harleston, Lenoir, Izagora, and Steens soils are on low terraces.

Climate

Marengo County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. A rare cold wave lingers for 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly in the form of afternoon thunderstorms, is adequate for the growth of all crops in most years.

Severe local storms, including tornadoes, strike occasionally in or near the county. They are short in duration and cause variable and spotty damage. Every few years in summer or fall, a tropical depression or a 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 Camden, Alabama, 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 47 degrees F and the average daily minimum temperature is 35 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 July 8, 1977, is 104 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (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 55.5 inches. Of this, 28.7 inches, or 52 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 15 inches. The heaviest 1-day rainfall during the period of record was 9.2 inches on December 10, 1961. Thunderstorms occur on about 59 days each year, and most occur in July.

Snowfall is rare. In 99 percent of the winters, there is no measurable snowfall. In 1 percent, the snowfall, usually of short duration, is more than 0.4 inches. The heaviest 1-day snowfall on record was more than 6.3 inches.

The average relative humidity in midafternoon is about 56 percent. Humidity is higher at night, and the average at dawn is about 86 percent. The sun shines 63 percent of the time possible in summer and 51 percent in winter. The prevailing wind is from the South. Average windspeed is highest, 8.3 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of 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.

Survey Procedures

The general procedures followed in making this survey are described in the National Soil Survey Handbook of the Natural Resources Conservation Service. The soil survey of Marengo County, published in 1923 *(14)* and the “Geology of Marengo County, Alabama” *(13)* were among the references used.

Before the field work began, preliminary boundaries of landforms were plotted stereoscopically on high-altitude aerial photographs. United States Geological Survey topographic maps and aerial photographs were studied to relate land and image features.

Traverses were made on foot and by vehicle, at variable intervals, depending on the complexity of the soil landscape and geology. Soil examinations along the traverses were made 50, 100, and 300 feet apart, depending on the landscape and soil pattern *(11, 15)*. Observations of landforms, uprooted trees, vegetation, roadbanks, and animal burrows were made continuously without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations, and photo interpretation. The soil material was examined with the aid of a spade, a hand auger, or a truck-mounted probe to a depth of 5 feet or more. The pedons described as typical were observed and studied in excavations.

Samples for chemical and physical analyses and engineering test data were taken from the site of the typical pedon of some of the major soils in the survey area. The analyses were made by the Agronomy and Soils Clay Mineralogy Laboratory, Auburn University, Auburn, Alabama; the National Soil Survey Laboratory, Lincoln, Nebraska; and the Alabama Department of Highways and Transportation, Montgomery, Alabama. The results of some of the analyses are published in this soil survey report. Unpublished analyses and the laboratory procedures can be obtained from the laboratories.

High-altitude aerial photography base maps at a scale of 1:20,000 were used for mapping of soil and surface drainage in the field. Cultural features were transferred from U.S. Geological Survey 7.5-minute series topographic maps and were recorded from visual observations. Soil mapping, drainage patterns, and cultural features recorded on base maps were then transferred to half-tone film positives by soil scientists. The film positives were reduced to a scale of 1:24,000, and all linework was transferred by cartographic technicians to a 1:24,000 base map developed from digital orthophotography prior to the final map finishing process.

General Soil Map Units

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

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

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

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

The boundaries of the general soil map units in Marengo County were matched, where possible, with those of the previously completed surveys of Dallas, Greene, Perry, Sumter, and Wilcox 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. Urbo-Mooreville-Una

Dominantly level to gently undulating, somewhat poorly drained, moderately well drained, and poorly drained soils that have a loamy surface layer and a clayey or a loamy subsoil

Setting

Location in the survey area: Western part
Landscape: Coastal Plain
Landform: Flood plain of the Tombigbee River
Landform position: Urbo—intermediate positions on low ridges; Mooreville—high, convex parts of low ridges; Una—low positions between ridges (in swales or sloughs)
Slope range: 0 to 3 percent

Composition

Percent of the survey area: 7
Urbo soils: 35 percent
Mooreville soils: 25 percent
Una soils: 20 percent
Minor soils: 20 percent, including the Bigbee, Cahaba, Chrysler, and Riverview soils

Soil Characteristics

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

Mooreville soils
Surface layer: Dark grayish brown loam
Subsoil: Upper part—yellowish brown clay loam that has grayish and brownish mottles; lower part—mottled grayish and brownish loam
Depth class: Very deep
Drainage class: Moderately well drained

Depth to seasonal high water table: Apparent, at a depth of 1.5 to 3 feet from January through March
Slope range: 0 to 3 percent
Parent material: Stratified loamy and sandy alluvium

Una soils
Surface layer: Very dark brown silty clay
Subsoil: Gray clay that has brownish mottles
Depth class: Very deep
Drainage class: Poorly drained
Depth to seasonal high water table: Perched, about 2 feet above the surface to a depth of 0.5 foot from December through June
Slope range: 0 to 1 percent
Parent material: Clayey alluvium

Minor soils
• The excessively drained Bigbee, the well drained Cahaba, and the moderately well drained Chrysler soils on low terraces
• The well drained Riverview soils on the high parts of natural levees

Use and Management

Major Uses: Woodland and wildlife habitat

Cropland
Management concerns: Flooding and wetness

Pasture and Hayland
Management concerns: Flooding and wetness

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Flooding and wetness

2. Bama-Smithdale-Savannah

Dominantly nearly level to strongly sloping, well drained and moderately well drained soils that have a loamy surface layer and a loamy subsoil; on high terraces

Setting

Location in the survey area: North-central and southern part
Landscape: Coastal Plain
Landform: High terraces
Landform position: Bama—broad, nearly level ridgetops and gently sloping side slopes; Smithdale—gently sloping to strongly sloping side slopes; Savannah—broad, nearly level ridgetops and gently sloping side slopes
Slope range: 0 to 15 percent

Composition

Percent of the survey area: 9
Bama soils: 35 percent
Smithdale soils: 25 percent
Savannah soils: 20 percent
Minor soils: 20 percent, including the Bonneau, Kinston, Lucedale, and Luverne soils

Soil Characteristics

Bama soils
Surface layer: Brown fine sandy loam
Subsurface layer: Yellowish red fine sandy loam
Subsoil: Red sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 0 to 5 percent
Parent material: Loamy sediments

Smithdale soils
Surface layer: Brown loamy sand
Subsoil: Upper part—yellowish red sandy clay 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 range: 5 to 15 percent
Parent material: Loamy and sandy sediments

Savannah soils
Surface layer: Dark grayish brown fine sandy loam
Subsurface layer: Light yellowish brown fine sandy loam
Subsoil: Upper part—light olive brown loam; lower part—yellowish brown loam that is brittle and has grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January through March
Slope range: 0 to 2 percent
Parent material: Loamy sediments

Minor soils
• Areas of sandy Bonneau soils on slightly higher parts of ridges
• The poorly drained Kinston soils on narrow flood plains
• Areas of dark reddish brown Lucedale soils on broad ridgetops at higher elevations
• Random areas of the clayey Luverne soils on side slopes

Use and Management

Major Uses: Cultivated crops, pasture, and hayland and as a site for homes

Cropland
Management concerns: Erodibility and low fertility

Pasture and Hayland
Management concerns: Low fertility

Woodland
Management concerns: No significant limitations

Urban Development
Management concerns: Bama—no significant limitations; Smithdale—slope in the steeper areas; Savannah—restricted permeability and wetness

3. Luverne-Halso

Dominantly gently sloping to steep, moderately well drained and well drained soils that have a loamy surface layer and a clayey subsoil; on uplands

Setting

Location in the survey area: Central and southeastern part
Landscape: Coastal Plain
Landform: Uplands
Landform position: Gently sloping, narrow to broad ridgetops and moderately sloping to steep side slopes
Slope range: 2 to 35 percent

Composition

Percent of the survey area: 3
Luverne soils: 45 percent
Halso soils: 40 percent
Minor soils: 15 percent, including the Boykin, Iuka, Kinston, Mantachie, Smithdale, and Wilcox soils

Soil Characteristics

Luverne soils
Surface layer: Dark brown sandy loam
Subsoil: Upper part—red clay loam; lower part—red clay
Substratum: Stratified yellowish red sandy clay loam and brownish yellow sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 2 to 35 percent
Parent material: Stratified clayey and loamy marine sediments

Halso soils
Surface layer: Brown fine sandy loam
Subsoil: Upper part—red clay; next part—red clay that has grayish mottles; lower part—mottled red, light gray, and strong brown clay
Substratum: Olive gray clayey shale
Depth class: Deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 2 to 15 percent
Parent material: Clayey marine sediments

Minor soils
- The sandy Boykin soils on the higher parts of ridgetops
- The moderately well drained Iuka, the poorly drained Kinston, and the somewhat poorly drained Mantachie soils on narrow flood plains
- Random areas of the loamy Smithdale soils on side slopes
- The clayey Wilcox soils on lower slopes

Use and Management

Major Uses: Woodland, pasture, and hayland

Cropland
Management concerns: Erodibility, low fertility, and slope in the steeper areas

Pasture and Hayland
Management concerns: Low fertility and slope in the steeper areas

Woodland
Management concerns: Competition from undesirable plants, erodibility, and restricted use of equipment

Urban Development
Management concerns: Restricted permeability, low strength, shrink-swell potential, and slope

4. Vaiden-Sucarnoochee-Searcy

Dominantly level to gently sloping, somewhat poorly drained and moderately well drained soils that have a clayey or a loamy surface layer and a clayey subsoil; on uplands and flood plains

Setting

Location in the survey area: Northern part
Landscape: Blackland Prairie
Landform: Vaiden and Searcy—uplands; Sucarnoochee—flood plains
Landform position: Vaiden—broad, nearly level

ridgetops, and smooth, gently sloping side slopes; Sucarnoochee—level to nearly level, planar to slightly concave slopes; Searcy—gently sloping toe slopes
Slope range: 0 to 8 percent

Composition

Percent of the survey area: 4
Vaiden soils: 45 percent
Sucarnoochee soils: 20 percent
Searcy soils: 15 percent
Minor soils: 20 percent, including the Faunsdale, Freest, Oktibbeha, Sumter, and Tuscumbia soils

Soil Characteristics

Vaiden soils
Surface layer: Dark brown silty clay
Subsoil: Upper part—yellowish brown clay that has grayish mottles; lower part—light olive brown and yellowish brown clay that has grayish mottles and soft masses of calcium carbonate
Substratum: Soft limestone (chalk)
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 1 to 2 feet from January to April
Slope range: 0 to 1 percent
Parent material: Acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk)

Sucarnoochee soils
Surface layer: Dark grayish brown clay
Next layer: Dark grayish brown clay that has olive yellow mottles
Subsoil: Upper part—dark grayish brown clay that has brownish and olive mottles; lower part—mottled gray, light olive brown, and strong brown clay
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from January to April
Slope range: 0 to 1 percent
Parent material: Alkaline, clayey alluvium

Searcy soils
Surface layer: Brown fine sandy loam
Subsurface layer: Light yellowish brown fine sandy loam
Subsoil: Upper part—strong brown clay loam; next part—red clay that has brownish and grayish mottles; lower part—mottled red and light gray clay
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Perched, at a depth of 2 to 3.5 feet from January through March
Slope range: 5 to 8 percent
Parent material: Clayey marine sediments

Minor soils
- The loamy Freest soils on terraces
- The somewhat poorly drained, alkaline Faunsdale soils on lower parts of slopes
- The moderately well drained Oktibbeha soils on slightly higher, more convex parts of ridgetops
- The moderately deep Sumter soils on side slopes and knolls
- The poorly drained Tuscumbia soils in depressions on flood plains

Use and Management

Major Uses: Cultivated crops, pasture, and hayland

Cropland
Management concerns: Vaiden—wetness and poor tilth; Sucarnoochee—flooding, wetness, and poor tilth; Searcy—erodibility

Pasture and Hayland
Management concerns: Vaiden—wetness; Sucarnoochee—flooding and wetness; Searcy—slight limitations

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Vaiden—wetness, restricted permeability, and shrink-swell potential; Sucarnoochee—flooding, wetness, restricted permeability, and shrink-swell potential; Searcy—wetness, restricted permeability, and shrink-swell potential

5. Wilcox-Consul

Dominantly nearly level to strongly sloping, somewhat poorly drained and poorly drained soils that have a clayey surface layer and a clayey subsoil; on uplands

Setting

Location in the survey area: Central part
Landscape: Coastal Plain
Landform: Uplands

Landform position: Wilcox—smooth, gently sloping to strongly sloping side slopes; Consul—slightly higher, broad, flat to slightly convex ridgetops
Slope range: 0 to 15 percent

Composition

Percent of the survey area: 13
Wilcox soils: 50 percent
Consul soils: 30 percent
Minor soils: 20 percent, including the Halso, Houlka, Kipling, and Luverne soils

Soil Characteristics

Wilcox soils
Surface layer: Very dark grayish brown clay
Subsoil: Upper part—yellowish red clay that has brownish, grayish, and reddish mottles; next part—mottled red, light gray, and brownish yellow clay; lower part—light gray clay
Substratum: Light olive brown shale
Depth class: Deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to April
Slope range: 2 to 15 percent
Parent material: Acid, clayey sediments and the underlying shale

Consul soils
Surface layer: Dark grayish brown clay
Subsoil: Upper part—light brownish gray clay that has yellowish brown mottles; lower part—grayish brown clay that has light olive brown mottles
Substratum: Light olive brown and grayish brown shale
Depth class: Very deep
Drainage class: Poorly drained
Depth to seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from January to April
Slope range: 0 to 2 percent
Parent material: Acid clayey sediments and the underlying alkaline shale

Minor soils
• The moderately well drained Halso and well drained Luverne soils on slightly higher, more convex parts of ridgetops
• The somewhat poorly drained Houlka soils on flood plains
• The somewhat poorly drained Kipling soils on side slopes and knolls

Use and Management

Major Uses: Woodland, cultivated crops, pasture, and hayland

Cropland
Management concerns: Wilcox—wetness, poor tilth, and erodibility; Consul—wetness and poor tilth

Pasture and Hayland
Management concerns: Wetness

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, seedling mortality, and erodibility

Urban Development
Management concerns: Wilcox—slope, restricted permeability, and shrink-swell potential; Consul—wetness, restricted permeability, and shrink-swell potential

6. Oktibbeha-Brantley-Luverne

Dominantly gently sloping to strongly sloping, moderately well drained and well drained soils that have a loamy or a clayey surface layer and a clayey subsoil; on uplands

Setting

Location in the survey area: Northern part
Landscape: Coastal Plain
Landform: Upland
Landform position: Oktibbeha—gently sloping ridgetops and moderately sloping ridgetops; Brantley—moderately sloping side slopes; Luverne—moderately sloping to steep side slopes
Slope range: 2 to 35 percent

Composition

Percent of the survey area: 7
Oktibbeha soils: 40 percent
Brantley soils: 20 percent
Luverne soils: 20 percent
Minor soils: 20 percent, including the Boykin, Kinston, Kipling, Smithdale, and Sucarnoochee soils

Soil Characteristics

Oktibbeha soils
Surface layer: Dark grayish brown clay
Subsoil: Upper part—red clay that has brownish mottles; next part—mottled reddish, grayish, and brownish clay; lower part—mottled yellowish brown and gray clay that has common soft masses and concretions of calcium carbonate
Depth class: Very deep
Drainage class: Moderately well drained

Depth to seasonal high water table: More than 6 feet
Slope range: 1 to 8 percent
Parent material: Acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk)

Brantley soils
Surface layer: Dark yellowish brown fine sandy loam
Subsurface layer: Strong brown fine sandy loam
Subsoil: Upper part—strong brown clay loam; lower part—strong brown sandy clay
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 2 to 15 percent
Parent material: Clayey and loamy marine sediments

Luverne soils
Surface layer: Dark brown sandy loam
Subsoil: Upper part—red clay loam; lower part—red clay
Substratum: Stratified yellowish red sandy clay loam and brownish yellow sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 2 to 35 percent
Parent material: Stratified clayey and loamy marine sediments

Minor soils
- The sandy Boykin soils on the high parts of ridgetops
- The poorly drained Kinston and somewhat poorly drained Sucarnoochee soils on narrow flood plains
- The somewhat poorly drained Kipling soils on low ridges and toe slopes
- The well drained, loamy Smithdale soils on the high parts of ridgetops and on side slopes

Use and Management

Major Uses: Woodland, pasture, and hayland

Cropland
Management concerns: Erodibility, poor tilth, and slope

Pasture and Hayland
Management concerns: Erodibility and slope

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, seedling mortality, and erodibility

Urban Development
Management concerns: Slope, restricted permeability, shrink-swell potential, and low strength

7. Mooreville-Mantachie-Kinston

Dominantly level, moderately well drained, somewhat poorly drained, and poorly drained soils that have a loamy surface layer and a loamy subsoil or a loamy substratum; on flood plains

Setting

Location in the survey area: Southern part
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Mooreville—high, convex parts of natural levees; Mantachie—intermediate positions; Kinston—low positions with flat to concave slopes
Slope range: 0 to 1 percent

Composition

Percent of the survey area: 2
Mooreville soils: 30 percent
Mantachie soils: 30 percent
Kinston soils: 20 percent
Minor soils: 20 percent, including the Cahaba, Harleston, Iuka, Izagora, and Steens soils

Soil Characteristics

Mooreville soils
Surface layer: Dark grayish brown loam
Subsoil: Yellowish brown clay loam that has grayish and brownish mottles
Substratum: Mottled light brownish gray, yellowish brown, and brownish yellow loam
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Apparent, at a depth of 1.5 to 3 feet from December through March
Slope range: 0 to 1 percent
Parent material: Stratified loamy and sandy alluvium

Mantachie soils
Surface layer: Brown fine sandy loam
Subsoil: Upper part—mottled yellowish brown, brown, and grayish brown sandy clay loam; next part—light brownish gray sandy clay loam; lower part—grayish brown sandy clay loam
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Apparent, at a depth of 1 to 1.5 feet from December to April
Slope range: 0 to 1 percent
Parent material: Stratified loamy alluvium

Kinston soils
Surface layer: Brown fine sandy loam
Substratum: Upper part—light brownish gray and light

gray loam that has brownish mottles; lower part—light gray and gray clay loam
Depth class: Very deep
Drainage class: Poorly drained
Depth to seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Slope range: 0 to 1 percent
Parent material: Stratified loamy and sandy alluvium

Minor soils
- The well drained Cahaba, moderately well drained Harleston and Izagora, and somewhat poorly drained Steens soils on low terraces
- The moderately well drained Iuka soils on the high part of natural levees

Use and Management

Major Uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Flooding and wetness

Pasture and Hayland
Management concerns: Flooding and wetness

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Flooding, wetness, and low strength

8. Wadley-Boykin-Smithdale

Dominantly gently sloping to steep, somewhat excessively drained and well drained soils that have a sandy surface layer and a loamy subsoil; on uplands

Setting

Location in the survey area: Northern and southern parts
Landscape: Coastal Plain
Landform: Uplands
Landform position: Narrow, gently sloping ridgetops and moderately sloping to steep side slopes
Slope range: 2 to 35 percent

Composition

Percent of the survey area: 5
Wadley soils: 35 percent
Boykin soils: 30 percent
Smithdale soils: 15 percent
Minor soils: 15 percent, including the Bibb, Brantley, Iuka, Luverne, and Searcy soils

Soil Characteristics

Wadley soils
Surface layer: Brown loamy fine sand
Subsurface layer: Upper part—yellowish brown loamy fine sand; lower part—brownish yellow loamy fine sand
Subsoil: Yellowish red sandy loam
Depth class: Very deep
Drainage class: Somewhat excessively drained
Depth to seasonal high water table: More than 6 feet
Slope range: 0 to 35 percent
Parent material: Sandy and loamy sediments

Boykin soils
Surface layer: Very dark grayish brown loamy fine sand
Subsurface layer: Light yellowish brown loamy fine sand
Subsoil: Upper part—yellowish red sandy loam; next part—reddish yellow sandy clay loam; lower part—red sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 0 to 35 percent
Parent material: Sandy and loamy sediments

Smithdale soils
Surface layer: Dark yellowish brown loamy fine sand
Subsoil: Upper part—red sandy clay 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 range: 2 to 35 percent
Parent material: Loamy and sandy sediments

Minor soils
- The poorly drained Bibb and moderately well drained Iuka soils on narrow flood plains
- Random areas of the well drained, clayey Brantley and Luverne soils
- The moderately well drained, clayey Searcy soils on toe slopes

Use and Management

Major Uses: Woodland and pasture

Cropland
Management concerns: Erodibility, droughtiness, low fertility, and slope in the steeper areas

Pasture and Hayland
Management concerns: Low fertility, droughtiness, and slope in the steeper areas

Woodland
Management concerns: Competition from undesirable plants, erodibility, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Wadley—slope, seepage, and droughtiness; Boykin—slope, seepage, and droughtiness; Smithdale—slope and seepage

9. Sucarnoochee-Houlka

Dominantly level, somewhat poorly drained soils that have a clayey surface layer and a clayey subsoil; on flood plains

Setting

Location in the survey area: Northern part
Landscape: Blackland Prairie and Coastal Plain
Landform: Flood plains
Landform position: Slightly convex to concave slopes
Slope range: 0 to 1 percent

Composition

Percent of the survey area: 4
Sucarnoochee soils: 45 percent
Houlka soils: 35 percent
Minor soils: 20 percent, including the Faunsdale, Kipling, Minter, and Tuscumbia soils

Soil Characteristics

Sucarnoochee soils
Surface layer: Dark grayish brown clay
Next layer: Dark grayish brown clay that has olive yellow mottles
Subsoil: Upper part—dark grayish brown clay that has brownish and olive mottles; lower part—mottled gray, light olive brown, and strong brown clay
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from January to April
Slope range: 0 to 1 percent
Parent material: Alkaline, clayey alluvium

Houlka soils
Surface layer: Dark grayish brown silty clay loam
Subsoil: Upper part—dark grayish brown clay; next part—gray silty clay that has strong brown mottles; lower part—gray clay that has strong brown mottles
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Slope range: 0 to 1 percent
Parent material: Acid, clayey alluvium

Minor soils
- The somewhat poorly drained Faunsdale and Kipling soils on side slopes
- The poorly drained Minter soils on low terraces
- The poorly drained Tuscumbia soils in depressions

Use and Management

Major Uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Flooding, wetness, and poor tilth

Pasture and Hayland
Management concerns: Flooding and wetness

Woodland
Management concerns: Competition from undesirable plants, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Flooding, wetness, and low strength

10. Sumter-Demopolis-Faunsdale

Dominantly nearly level to strongly sloping, well drained and somewhat poorly drained soils that have a clayey surface layer and a loamy or clayey subsoil; on uplands

Setting

Location in the survey area: Northern part
Landscape: Blackland Prairie
Landform: Uplands
Landform position: Sumter—broad ridgetops and side slopes; Demopolis—narrow, convex ridgetops, knolls, and short side slopes; Faunsdale—lower parts of side slopes
Slope range: 1 to 12 percent

Composition

Percent of the survey area: 11
Sumter soils: 35 percent
Demopolis soils: 25 percent

Faunsdale soils: 20 percent
Minor soils: 20 percent, including the Kipling, Oktibbeha, Sucarnoochee, Vaiden, and Watsonia soils

Soil Characteristics

Sumter soils
Surface layer: Dark grayish brown silty clay loam
Subsoil: Upper part—light olive brown silty clay that has yellowish brown mottles and common soft masses of calcium carbonate
Bedrock layer: Soft limestone (chalk)
Depth class: Moderately deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 1 to 12 percent
Parent material: Alkaline, loamy and clayey residuum derived from soft limestone (chalk)

Demopolis soils
Surface layer: Dark grayish brown silty clay loam
Substratum: Dark grayish brown silty clay loam that has many fragments of soft chalk and concretions of calcium carbonate
Bedrock layer: Soft limestone (chalk)
Depth class: Shallow
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 1 to 12 percent
Parent material: Loamy residuum derived from soft limestone (chalk)

Faunsdale soils
Surface layer: Very dark grayish brown clay loam
Next layer: Dark grayish brown silty clay
Subsoil: Upper part—light olive brown clay loam; lower part—light olive brown silty clay and clay
Substratum: Upper part—light brownish gray clay; lower part—soft limestone (chalk)
Depth class: Very deep
Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 1 to 2 feet from January to April
Slope range: 1 to 5 percent
Parent material: Alkaline, clayey sediments and the underlying alkaline clay and soft limestone (chalk)

Minor soils
- The somewhat poorly drained, acid Kipling and Vaiden soils on lower, smoother ridgetops
- The somewhat poorly drained Sucarnoochee soils on narrow flood plains
- The acid, clayey Watsonia and Oktibbeha soils on crests of ridges and on side slopes

Use and Management

Major Uses: Pasture, woodland, and cultivated crops

Cropland
Management concerns: Sumter—erodibility and poor tilth; Demopolis—erodibility, depth to rock, and droughtiness; Faunsdale—wetness, erodibility, and poor tilth

Pasture and Hayland
Management concerns: Dempolis—depth to rock and droughtiness; Faunsdale—wetness

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

Urban Development
Management concerns: Sumter—depth to rock, restricted permeability, and shrink-swell potential; Demopolis—depth to rock; Faunsdale—restricted permeability and shrink-swell potential

11. Cahaba-Izagora-Chrysler

Dominantly level to gently sloping, well drained and moderately well drained soils that have a loamy surface layer and a loamy or clayey subsoil; on low terraces

Setting

Location in the survey area: Parallel to the Tombigbee River
Landscape: Coastal Plain
Landform: Low terraces
Landform position: Cahaba—level to gently sloping, slightly convex slopes; Izagora and Chrysler—level to nearly level, slightly convex slopes
Slope range: 0 to 5 percent

Composition

Percent of the survey area: 9
Cahaba soils: 30 percent
Izagora soils: 25 percent
Chrysler soils: 20 percent
Minor soils: 25 percent, including the Bigbee, Harleston, Lenoir, Minter, Una, and Urbo soils

Soil Characteristics

Cahaba soils
Surface layer: Brown fine sandy loam
Subsoil: Upper part—red sandy clay loam; lower part—red loam

Substratum: Yellowish red sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 0 to 5 percent
Parent material: Loamy and sandy alluvium

Izagora soils
Surface layer: Very dark grayish brown sandy loam
Subsoil: Upper part—light yellowish brown loam; next part—brownish yellow clay loam that has reddish and grayish mottles; lower part—mottled grayish, reddish, and brownish clay loam
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Perched, at a depth of 2 to 3 feet from December to March
Slope range: 0 to 2 percent
Parent material: Loamy sediments

Chrysler soils
Surface layer: Dark grayish brown silt loam
Subsurface layer: Brown silt loam
Subsoil: Upper part—yellowish red silty clay loam and silty clay; next part—brownish yellow clay that has light gray and red mottles; lower part—mottled light gray, yellowish brown, and red clay
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January through March
Slope range: 0 to 2 percent
Parent material: Clayey sediments

Minor soils
- The sandy Bigbee soils on slightly higher, more convex parts of terraces
- The somewhat poorly drained Lenoir and poorly drained Minter soils in flat to slightly concave positions on terraces
- The poorly drained, clayey Una soils in old oxbows, sloughs, and other shallow depressions on flood plains
- The somewhat poorly drained, clayey Urbo soils on flood plains

Use and Management

Major Uses: Cultivated crops, pasture, hayland, and woodland

Cropland
Management concerns: Cahaba—erodibility in the steeper areas; Chrysler—flooding

Pasture and Hayland
Management concerns: Cahaba—no significant limitations; Izagora—wetness; Chrysler—wetness and flooding

Woodland
Management concerns: Competition from undesirable plants and restricted use of equipment

Urban Development
Management concerns: Cahaba—flooding; Izagora—flooding, wetness, restricted permeability, and low strength; Chrysler—flooding, wetness, restricted permeability, and shrink-swell potential

12. Luverne-Smithdale-Boykin

Dominantly gently sloping to steep, well drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil; on uplands

Setting

Location in the survey area: Southern part
Landscape: Coastal Plain
Landform: Uplands
Landform position: Narrow, gently sloping ridgetops and moderately sloping to steep side slopes
Slope range: 2 to 35 percent

Composition

Percent of the survey area: 26
Luverne soils: 35 percent
Smithdale soils: 30 percent
Boykin soils: 15 percent
Minor soils: 15 percent, including the Bibb, Halso, Iuka, and Wadley soils

Soil Characteristics

Luverne soils
Surface layer: Yellowish brown sandy loam
Subsoil: Upper part—red clay loam; next part—yellowish red sandy clay; lower part—red sandy clay loam
Substratum: Stratified yellowish red sandy clay loam and brownish yellow sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 2 to 35 percent
Parent material: Stratified clayey and loamy marine sediments

Smithdale soils
Surface layer: Dark yellowish brown loamy fine sand
Subsoil: Upper part—red sandy clay 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 range: 2 to 35 percent
Parent material: Loamy and sandy sediments

Boykin soils
Surface layer: Very dark grayish brown loamy fine sand
Subsurface layer: Light yellowish brown loamy fine sand
Subsoil: Upper part—yellowish red sandy loam; next part—reddish yellow sandy clay loam; lower part—red sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope range: 0 to 35 percent
Parent material: Sandy and loamy sediments

Minor soils
• The poorly drained Bibb and moderately well drained Iuka soils on narrow flood plains
• Random areas of the somewhat excessively drained, sandy Wadley soils
• The moderately well drained, clayey Halso soils on lower parts of slopes

Use and Management

Major Uses: Woodland and pasture

Cropland
Management concerns: Erodibility, droughtiness, low fertility, and slope in the steeper areas

Pasture and Hayland
Management concerns: Low fertility, droughtiness, and slope in the steeper areas

Woodland
Management concerns: Competition from undesirable plants, erodibility, restricted use of equipment, and seedling mortality

Urban Development
Management concerns: Luverne—slope, restricted permeability, shrink-swell potential, low strength; Smithdale—slope and seepage; Boykin—slope, seepage, and droughtiness

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, Sumter silty clay loam, 5 to 12 percent slopes, eroded, is a phase of the Sumter 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. Boykin-Wadley complex, 15 to 30 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. Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, 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. Pits is an example.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see “Contents”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

BaA—Bama fine sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on broad ridgetops in the uplands. Slopes are long and smooth. Individual areas are generally broad. They range from 10 to more than 150 acres in size.

Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 11 inches, is yellowish red fine sandy loam. The subsoil, to a depth of 65 inches, is red sandy clay loam.

Important properties of the Bama soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Lucedale and Smithdale soils. Lucedale soils are in landscape positions similar to those of the Bama soil. They have dark reddish brown colors throughout the subsoil. Smithdale soils are on adjacent side slopes. They have a significant decrease in the content of clay in the lower part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as sites for homes, and a few areas are wooded.

This soil is well suited to cultivated crops. It has few limitations for this use, although low fertility is a management concern. The surface layer of this soil is friable and is easy to keep in good tilth. It can be tilled over a wide range of moisture content without becoming cloddy. Using conservation practices such as cover crops, minimum tillage, and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay (fig. 2). It has no significant limitations for these uses, although low fertility is a management concern. Coastal bermudagrass and bahiagrass are the commonly grown grasses. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve the fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, yellow jessamine, longleaf uniola, huckleberry, flowering dogwood, and greenbrier.

This soil has few limitations affecting the production of timber, although plant competition is a minor management concern. Using proper site preparation and spraying, cutting, or girdling can eliminate unwanted weeds, brush, and trees.

This soil is well suited to most urban uses. It has no significant management concerns for most uses.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for woodland wildlife can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey.

This Bama soil is in capability class I. The woodland ordination symbol is 9A.

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

BaB—Bama fine sandy loam, 2 to 5 percent slopes

This very deep, well drained soil is on ridgetops and upper parts of side slopes in the uplands. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 5 to 150 acres in size.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsoil, to a depth of 65 inches, is red sandy clay loam.

Important properties of the Bama soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Luverne and Smithdale soils. Luverne and Smithdale soils are in slightly lower landscape positions than the Bama soil. Luverne soils have clayey subsoil layers. Smithdale soils have a significant decrease in the content of clay in the lower part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas generally are less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as sites for homes, and a few areas are wooded.

This soil is well suited to cultivated crops. The main limitations are the low fertility and the moderate hazard of erosion. Gullies form readily in areas that have a concentrated flow of water on the surface. Conservation tillage, terraces, contour farming, and cover crops reduce the runoff rate and help to control erosion. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to additions of lime and fertilizer.

This soil is well suited to pasture and hay. The main limitations are the low fertility and the moderate hazard of erosion. Coastal bermudagrass and bahiagrass are the commonly grown grasses. Tillage should be on the contour or across the slope. Proper stocking rate, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, sumac, yellow jessamine, huckleberry, greenbrier, and flowering dogwood.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicide, help to control the initial plant competition and facilitate mechanical planting.

This soil is well suited to most urban uses, and it has no significant limitations for these uses.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey.

This Bama soil is in capability subclass IIe. The woodland ordination symbol is 9A.

BbA—Bibb-Iuka complex, 0 to 1 percent slopes, frequently flooded

This map unit consists of the very deep, poorly drained Bibb and moderately well drained Iuka soils on narrow flood plains. These soils are subject to frequent flooding for brief periods several times each year. The soils occur as areas so intricately intermingled that it was not practical to separate them at the scale selected for mapping. The Bibb soil makes up about 45 percent of the map unit, and the Iuka soil makes up about 40 percent. Individual areas are long and narrow. They range from 5 to more than 250 acres in size.

The Bibb soil is in flat to concave landscape positions, generally at the lowest elevations on the flood plain. Typically, the surface layer is very dark grayish brown and dark grayish brown fine sandy loam about 8 inches thick. The substratum, to a depth of 65 inches, is dark gray and light gray sandy loam in the upper part, gray loam in the next part, and gray sandy loam in the lower part.

Important properties of the Bibb soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Shrink-swell potential: Low
Flooding: Frequent

The Iuka soil is on the higher, more convex parts of the flood plain. Typically, the surface layer is very dark grayish brown and brown fine sandy loam about 10 inches thick. The substratum, to a depth of 65 inches, is yellowish brown sandy loam in the upper part and light gray sandy loam that has brownish mottles in the lower part.

Important properties of the Iuka soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 to 3 feet from December through April
Shrink-swell potential: Low
Flooding: Frequent

Included in mapping are a few small areas of Cahaba, Kinston, and Mantachie soils. The well drained Cahaba soils are on low knolls or remnants of terraces at slightly higher elevations. They are not subject to frequent flooding. Kinston soils are in landscape positions similar to those of the Bibb soil. They have a higher content of clay throughout the substratum. The somewhat poorly drained Mantachie soils are in slightly higher positions than the Bibb soil. Also included are small areas of very poorly drained soils in depressions that are subject to ponding. The included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded and are used for wildlife habitat. A few areas are used for pasture, hay, or cultivated crops.

This map unit is poorly suited to most cultivated crops. The frequent flooding and the wetness are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed.

This map unit is poorly suited to pasture and hay because of the frequent flooding and wetness. If areas are used for pasture or hay, grasses that tolerate the wet soil conditions should be selected. Common bermudagrass is a suitable grass to plant. Shallow ditches help to remove excess water from the surface.

This map unit is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include sweetgum, American sycamore, yellow-poplar, water oak, and green ash. On the basis of a 50-year site curve, the mean site index for water oak is 90 for the Bibb soil. The average annual growth of well stocked, even-aged, unmanaged stands of water oak at 30 years of age is 1 cord per acre per year. On the basis of a 50-site curve, the mean site index for loblolly pine is 100 for the Iuka soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year. The understory vegetation consists mainly of sweetgum, blackgum, Alabama supplejack, panicums, sweetbay, green ash, and red maple.

This map unit has severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soils are dry. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soils and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on beds or increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is not suited to most urban uses. The flooding and wetness are severe limitations for most uses. Although it is generally not feasible to control flooding, buildings can be placed on pilings or on well-compacted fill to elevate them above the expected flood level.

The Bibb soil has poor potential as habitat for openland wildlife, fair potential as habitat for woodland wildlife, and good potential as habitat for wetland wildlife. The Iuka soil has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and poor potential as habitat for wetland wildlife. Habitat for openland and woodland wildlife can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Bibb and Iuka soils are in capability subclass Vw. The woodland ordination symbol is 8W for the Bibb soil and 11W for the Iuka soil.

BgB—Bigbee loamy sand, 0 to 5 percent slopes, occasionally flooded

This very deep, excessively drained soil is on low stream terraces and natural levees adjacent to the Tombigbee River and other large streams. Slopes are generally long and smooth. Individual areas are oblong in shape. They range from 5 to more than 100 acres in size.

Typically, the surface layer is brown loamy sand about 9 inches thick. The substratum, to a depth of 80 inches, is strong brown loamy sand in the upper part and yellow sand in the lower part.

Important properties of the Bigbee soil—

Permeability: Rapid
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3.5 to 6 feet from January to March
Shrink-swell potential: Low
Flooding: Occasional

Included in mapping are a few small areas of Cahaba, Riverview, and Urbo soils. Cahaba and Riverview soils are in landscape positions similar to those of the Bigbee soil. Cahaba soils have a reddish, loamy subsoil. Riverview soils have a brownish, loamy subsoil. Urbo soils are in drainageways and are clayey throughout the solum. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for pasture or woodland. A few areas are used for cultivated crops or hay.

This soil is suited to cultivated crops. The low fertility, the low available water capacity, and the occasional flooding are the main limitations. The planting of early season crops may be delayed in some years because of flooding. If this soil is used for row crops, conservation tillage, crop rotation, and cover crops help to conserve moisture and control runoff and erosion. Irrigation can prevent crop damage and increase productivity in most years. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to conserve moisture and maintain tilth and the content of organic matter. Crops respond well to applications of lime and frequent, light applications of fertilizer.

This soil is well suited to pasture and hay. Droughtiness and occasional flooding are the main limitations. Bahiagrass and coastal bermudagrass are well suited to this soil. The leaching of plant nutrients is a management concern. Split applications of nitrogen fertilizer are recommended to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This soil is suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 75. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 1.4 cords per acre per year. The understory vegetation consists mainly of huckleberry, greenbrier, prickly pear cactus, blackberry, common persimmon, blackjack oak, and water oak.

This soil has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and the seedling mortality rate. The sandy texture restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned during seasons of the year when the soil is moist. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted.

This map unit is poorly suited to most urban uses. It has severe limitations for building sites and most kinds of sanitary facilities and moderate limitations for local roads and streets. The main limitations are the sandy texture, seepage, wetness, and the hazard of flooding. If buildings are constructed in areas of this unit, they should be placed on pilings or on well compacted fill above the expected flood level. Septic tank absorption fields may not function properly during rainy periods because of the seasonal high water table. Increasing the size of the absorption field or constructing the absorption field on a raised bed helps to overcome this limitation.

This map unit has fair potential as habitat for openland wildlife, poor potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Bigbee soil is in land capability subclass IIIs. The woodland ordination symbol is 7S.

BnB—Bonneau loamy fine sand, 0 to 5 percent slopes

This very deep, well drained soil is on broad ridgetops and terraces of the uplands. Slopes are long and smooth. Individual areas are oblong to irregular in shape. They range from 5 to 150 acres in size.

Typically, the surface layer is brown loamy fine sand about 7 inches thick. The subsurface layer, to a depth of 21 inches, is pale brown loamy sand. The subsoil, to a depth of 65 inches, is brownish yellow sandy clay loam that has brownish, grayish, and reddish mottles in the upper part and is mottled brownish yellow, light gray, and red sandy clay loam in the lower part.

Important properties of the Bonneau soil—

Permeability: Rapid in the surface layer and subsurface layer; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 3.5 to 5.0 feet from December through March

Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Izagora, Kinston, and Savannah soils. Izagora soils are in slightly lower landscape positions. They do not have a thick sandy surface layer. The poorly drained Kinston soils are on narrow flood plains. Savannah soils are in slightly higher landscape positions. They do not have thick sandy surface layers, and they have a fragipan. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops or pasture. Some areas are used for woodland, hay, or as sites for homes.

This soil is well suited to most cultivated crops. The main limitations are the low available water capacity and the low fertility. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation system that includes grasses and legumes increase the available water, decrease crusting, and improve soil fertility. Using supplemental irrigation and selecting crop varieties that are adapted to droughty conditions increase the production of crops. Most crops respond well to applications of lime and frequent, light applications of fertilizer.

This soil is well suited to pasture and hay. The main limitations are the low available water capacity and the low fertility. Drought-tolerant grasses, such as bahiagrass and coastal bermudagrass, are well suited. The leaching of plant nutrients is a management concern. Split applications of nitrogen fertilizer are recommended to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, brackenfern, poison oak, flowering dogwood, common persimmon, blackjack oak, and little bluestem.

This soil has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture of the surface layer restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned during seasons of the year when the soil is moist. The moderate seedling mortality rate can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation, herbicides, or prescribed fire.

This soil is suited to most urban uses. The main limitations are the moderate permeability and droughtiness. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants. Septic tank absorption fields may not function properly during rainy periods because of the moderate permeability. Enlarging the size of the absorption field helps to compensate for this limitation.

This soil has good potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and poor potential as habitat for wetland wildlife. The low available water capacity and the low natural fertility are limitations for improving the potential as habitat for wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Bonneau soil is in capability subclass IIs. The woodland ordination symbol is 9S.

BoB—Boykin loamy fine sand, 0 to 5 percent slopes

This very deep, well drained soil is on narrow to broad ridgetops in the uplands. Slopes are generally long and smooth, but they may be short and complex. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

Typically, the surface layer is very dark grayish brown loamy fine sand about 5 inches thick. The subsurface layer, to a depth of 28 inches, is light yellowish brown loamy fine sand. The subsoil, to a depth of 80 inches, is yellowish red sandy loam in the upper part, reddish yellow sandy clay loam in the next part, and red sandy clay loam in the lower part.

Important properties of the Boykin soil—

Permeability: Rapid in the surface layer and subsurface layer; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep

Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Smithdale and Wadley soils. Smithdale soils are commonly in slightly lower landscape positions than the Boykin soil. They do not have thick sandy surface and subsurface layers. Wadley soils are in landscape positions similar to those of the Boykin soil. They have sandy surface and subsurface layers more than 40 inches thick. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as woodland, pasture, or hayland. Some areas are used for cultivated crops or as sites for homes.

This soil is suited to cultivated crops. The moderate hazard of erosion, the low fertility, and the low available water capacity are the main limitations. Contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Returning crop residue to the soil helps to maintain tilth and increases the water-holding capacity. Irrigation can prevent crop damage and increase productivity in most years. Most crops respond well to applications of lime and frequent, light applications of fertilizer.

This soil is well suited to pasture and hay. Coastal bermudagrass and bahiagrass are well suited to this soil. The main limitations are the low fertility and the low available water capacity. The leaching of plant nutrients is a management concern. Frequent, light applications of nitrogen are necessary to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This soil is well suited to loblolly pine and longleaf pine. Other species that commonly grow in areas of this soil include sweetgum and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, prickly pear cactus, brackenfern, common persimmon, flowering dogwood, and blackjack oak.

This soil has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture of the surface layer restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned during seasons of the year when the soil is moist. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This soil is well suited to most urban uses. The thick sandy surface layer, the low fertility, and the low available water capacity are the main management concerns. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This soil has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. The low available water capacity and the low natural fertility are limitations for improving the potential as habitat for wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Boykin soil is in capability subclass IIs. The woodland ordination symbol is 8S.

BpE—Boykin-Wadley complex, 15 to 30 percent slopes

This map unit consists of the very deep, well drained Boykin soil and the somewhat excessively drained Wadley soil. It is on side slopes and narrow ridges in the uplands. The soils occur as areas so intricately intermingled that they could not be separated at the scale selected for mapping. The Boykin soil makes up about 45 percent of the map unit, and the Wadley soil makes up about 40 percent. Slopes are generally short and complex, but they may be long and smooth in some areas. Individual areas are irregular in shape. They range from 10 to 300 acres in size.

The Boykin soil is generally on the upper parts of side slopes. Typically, the surface layer is brown loamy fine sand about 6 inches thick. The subsurface layer, to a depth of 32 inches, is pale brown loamy fine sand. The subsoil, to a depth of 65 inches, is red sandy loam in the upper part and red sandy clay loam in the lower part.

Important properties of the Boykin soil—

Permeability: Rapid in the surface layer and subsurface layer; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low

Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

The Wadley soil is generally on the lower parts of side slopes. Typically, the surface layer is brown loamy fine sand about 4 inches thick. The subsurface layer, to a depth of 57 inches, is yellowish brown loamy fine sand in the upper part and brownish yellow loamy fine sand in the lower part. The subsoil, to a depth of 80 inches, is red sandy loam.

Important properties of the Wadley soil—

Permeability: Rapid in the surface and subsurface layers; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bibb, Iuka, Luverne, and Smithdale soils. The poorly drained Bibb soils and the moderately well drained Iuka soils are on narrow flood plains. Luverne and Smithdale soils are in landscape positions similar to those of the Boykin and Wadley soils. They do not have thick sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and as habitat for wildlife. A few areas are used for pasture or hay.

This map unit is not suited to cultivated crops, mainly because the slopes are too steep and the hazard of erosion is too severe. The complex slopes, droughtiness, and the low fertility are additional limitations.

These soils are poorly suited to pasture and hay. The main limitations are the slope, the low fertility, the droughtiness, and the severe hazard of erosion. The more steeply sloping areas are best suited to native grasses. Proper stocking rates, pasture rotation, and restricted grazing during very wet or very dry periods help to keep the pasture in good condition.

This map unit is suited to loblolly pine and longleaf pine. Other species that commonly grow in areas of these soils include shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85 for the Boykin soil and 80 for the Wadley soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year for the Boykin soil and 1.8 cords per acre per year for the Wadley soil. The understory vegetation consists mainly of turkey oak, sandjack oak, blackjack oak, brackenfern, sweetgum, water oak, poison oak, prickly pear cactus, little bluestem, and panicums.

This map unit has moderate limitations for the management of timber. The main limitations are the hazard of erosion, the restricted use of equipment, the seedling mortality rate, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope and sandy texture restrict the use of wheeled equipment, especially when the soils are very dry. Harvesting activities should be planned during seasons of the year when the soils are moist. The moderate seedling mortality rate can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

These soils are poorly suited to most urban uses. Areas of this map unit are generally not suitable as sites for buildings because of the slope. Other limitations include the sandy texture, droughtiness, and seepage. Erosion is a hazard in the steeper areas. Cutbanks are unstable and are subject to slumping. Support beams should be used to maintain the stability of the cutbanks. Access roads can be designed so that surface runoff is controlled and cut-slopes are stabilized. If septic tank absorption fields are used, effluent can surface in downslope areas and create a hazard to health. Increasing the length of the absorption lines and constructing the lines on the contour will help to compensate for this concern. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential as habitat for openland wildlife, poor potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

The Boykin and Wadley soils are in capability subclass VIIe. The woodland ordination symbol is 8R.

BrC—Brantley fine sandy loam, 5 to 8 percent slopes

This very deep, well drained soil is on side slopes and narrow ridgetops in the uplands. Slopes are generally short and complex. Most areas are irregular in shape. They range from 10 to 150 acres in size.

Typically, the surface layer is dark yellowish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 10 inches, is strong brown fine sandy loam. The subsoil, to a depth of 55 inches, is strong brown clay loam in the upper part and strong brown sandy clay in the lower part. The substratum, to a depth of 70 inches, is strong brown fine sandy loam.

Important properties of the Brantley soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Kinston, Okeelala, Oktibbeha, and Searcy soils. The poorly drained Kinston soils are on narrow flood plains. Okeelala and Oktibbeha soils are in landscape positions similar to those of the Brantley soil. Okeelala soils are loamy throughout the profile. Oktibbeha soils have a higher content of clay throughout the subsoil. Searcy soils are on toe slopes. They are moderately well drained and have a thicker solum than the Brantley soil. The included soils make up about 15 percent of the map unit, but individual areas generally are less than 5 acres in size.

Most areas of this soil are used as woodland or pasture. A few areas are used for cultivated crops or hay.

This soil is suited to cultivated crops. The main management concerns are the low fertility and the severe hazard of erosion. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Drop-inlet structures, installed in grassed waterways, help to prevent gullying. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture and soil in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, poison ivy, huckleberry, muscadine grape, waxmyrtle, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and plant competition. The low strength of the clayey subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, and the low strength when used as a site for roads or streets. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the slow permeability. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome this limitation.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Brantley soil is in capability subclass IVe. The woodland ordination symbol is 9C.

BrD2—Brantley fine sandy loam, 8 to 15 percent slopes, eroded

This very deep, well drained soil is on side slopes and toe slopes in the uplands. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has been removed. Most areas have few or common rills and shallow gullies. Slopes are generally short and complex. Individual areas are irregular in shape and range from 10 to 350 acres in size.

Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsoil, to a depth of 45 inches, is strong brown clay loam. The substratum, to a depth of 65 inches, is brown fine sandy loam. In a few places, the surface layer is loam or sandy clay loam.

Important properties of the Brantley soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Kinston, Okeelala, Oktibbeha, and Searcy soils. The poorly drained Kinston soils are on narrow flood plains. Okeelala soils are in landscape positions similar to those of the Brantley soil. They are loamy throughout the profile. Oktibbeha and Searcy soils are on the lower parts of slopes. Oktibbeha soils have a higher content of clay throughout the subsoil. Searcy soils are moderately well drained and have a thicker solum than the Brantley soil. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as woodland. A few areas are used for pasture or hay.

This map unit is unsuited to most cultivated crops. The complex topography and the moderately sloping to strongly sloping slopes are severe limitations for the use of equipment. Erosion is a severe hazard. Gullies form readily in areas that have a concentrated flow of water on the surface. If the soil is cultivated, all tillage should be on the contour or across the slope.

This soil is suited to pasture and hay. The complex slopes and the severe hazard of erosion are the main limitations. The use of equipment is limited by the sloping, complex topography and occasional deep gullies. Tillage should be on the contour or across the slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, poison ivy, huckleberry, muscadine grape, waxmyrtle, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the hazard of erosion, the equipment limitation, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion. Exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope and deep gullies restrict the use of equipment. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Management activities should be conducted during seasons of the year when the soil is dry. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This soil is poorly suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and for most kinds of sanitary facilities. The main limitations are the slope, the moderate shrink-swell potential, the slow permeability, and low strength if used for roads and streets. Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut slopes are stabilized. Roads should also be designed to offset the limited ability of this soil to support a load. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Septic tank absorption fields may not function properly because of the slow permeability. Alternative methods of sewage disposal should be used to properly dispose of waste.

This map unit has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Brantley soil is in capability subclass VIe. The woodland ordination symbol is 9C.

BsF2—Brantley-Okeelala complex, 15 to 35 percent slopes, eroded

This map unit consists of the very deep, well drained Brantley and Okeelala soils. It is on side slopes and narrow ridgetops of the highly dissected uplands. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected for mapping. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has been removed. Most areas have a few rills and shallow gullies. The Brantley soil makes up about 45 percent of the map unit, and the Okeelala soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 25 to 500 acres in size.

The Brantley soil is generally on the middle and lower parts of slopes. Typically, the surface layer is brown fine sandy loam about 4 inches thick. The subsoil, to a depth of 43 inches, is yellowish red clay in the upper part and yellowish red clay loam in the lower part. The substratum, to a depth of 65 inches, is strong brown fine sandy loam.

Important properties of the Brantley soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

The Okeelala soil is generally on the upper parts of slopes and on narrow ridgetops. Typically, the surface layer is yellowish brown fine sandy loam about 3 inches thick. The subsoil, to a depth of 65 inches, is red clay loam in the upper part, red sandy clay loam in the next part, and red sandy loam in the lower part.

Important properties of the Okeelala soil—

Permeability: Moderate in the upper part of the subsoil; moderately rapid in the lower part
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Boykin, Kinston, Iuka, and Wadley soils. Boykin and Wadley soils are on the upper parts of slopes and have thick sandy surface and subsurface layers. The poorly drained Kinston and moderately well drained Iuka soils are on narrow flood plains. Included soils make up about 20 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and as habitat for wildlife. A few areas are used for pasture.

This map unit is not suited to cultivated crops, mainly because the slopes are too steep and the hazard of erosion is too severe. The irregular slopes and the low fertility are additional limitations.

This map unit is poorly suited to pasture and hay. The main limitations are the slope, the low fertility, and the severe hazard of erosion. The more steeply sloping areas are best suited to native grasses. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of these soils include shortleaf pine, longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90 for the Brantley and Okeelala soils. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year for the Brantley and Okeelala soils. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, waxmyrtle, muscadine grape, American beautyberry, yellow jessamine, blackberry, redbud, eastern redcedar, sweetgum, water oak, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the hazard of erosion, the equipment limitation, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope restricts the use of equipment. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Cable yarding systems are safer and damage the soil less. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. It is generally not suitable as a site for buildings because of the slope. Other limitations include the slow permeability, the moderate shrink-swell potential, and the low strength of the Brantley soil.

This map unit has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Brantley and Okeelala soils are in capability subclass VIIe. The woodland ordination symbol for both soils is 9R.

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

This very deep, well drained soil is on low terraces that parallel the Tombigbee River and other large streams throughout the county. Flooding is rare, but it can occur under unusual weather conditions. Slopes are generally long and smooth. Individual areas are oblong in shape. They range from 5 to 120 acres in size.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The subsoil, to a depth of 47 inches, is red sandy clay loam. The substratum, to a depth of 90 inches, is yellowish red fine sandy loam in the upper part and red loamy sand in the lower part.

Important properties of the Cahaba soil—

Permeability: Moderate in the upper part of the subsoil; moderately rapid in the lower part
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Chrysler, Izagora, and Minter soils. The moderately well drained Chrysler and Izagora soils are in slightly lower, more concave landscape positions. Chrysler soils have a clayey texture in the upper part of the subsoil. Izagora soils have a brownish subsoil. The poorly drained Minter soils are in small depressions and have a clayey texture in the upper part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for cultivated crops, pasture, or hay. A few areas are used for woodland, and some areas are used as sites for homes.

This soil is well suited to cultivated crops. There are few limitations for this use; however, low fertility is a concern. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This soil is well suited to pasture and hay. There are few limitations for these uses. Grasses such as coastal bermudagrass and bahiagrass are well suited.

Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, yellow-poplar, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of greenbrier, little bluestem, panicums, American holly, longleaf uniola, sweetgum, and flowering dogwood.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control the initial plant competition and facilitate mechanical planting.

This soil is poorly suited to most urban uses. The hazard of flooding is a severe limitation that is difficult to overcome. If this soil is used as a homesite, the building should be constructed on elevated, well-compacted fill material to minimize damage from floodwater.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Cahaba soil is in capability class I. The woodland ordination symbol is 10A.

CbA—Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded

This very deep, well drained soil is on low terraces that parallel the Tombigbee River and other large streams throughout the county. This map unit is subject to occasional flooding, generally during late winter or early spring. Slopes are generally long and smooth. Individual areas are oblong in shape. They range from 5 to 50 acres in size.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsoil, to a depth of 54 inches, is red sandy clay loam in the upper part and red loam in the lower part. The substratum, to a depth of 65 inches, is yellowish red sandy loam.

Important properties of the Cahaba soil—

Permeability: Moderate in the upper part of the subsoil; moderately rapid in the lower part
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: Occasional

Included in mapping are a few small areas of Bigbee, Chrysler, Lenoir, Una, and Urbo soils. Bigbee soils are in landscape positions similar to those of the Cahaba soil and are sandy throughout the profile. The moderately well drained Chrysler soils and the somewhat poorly drained Lenoir soils are in slightly lower, more concave landscape positions. They have a clayey texture in the upper part of the subsoil. The poorly drained Una and somewhat poorly drained Urbo soils are in small depressions and drainageways. They have a clayey texture throughout the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for cultivated crops, pasture, or hay. A few areas are used for woodland.

This soil is well suited to cultivated crops. The main limitation is the occasional flooding. The planting of early season crops may be delayed in some years because of flooding. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This soil is well suited to pasture and hay. Occasional flooding is the main limitation. Grasses such as coastal bermudagrass and bahiagrass are well suited. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, yellow-poplar, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of greenbrier, little bluestem, panicums, American holly, longleaf uniola, sweetgum, and flowering dogwood.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control the initial plant competition and facilitate mechanical planting.

This soil is poorly suited to most urban uses. The hazard of flooding is a severe limitation that is difficult to overcome. If this soil is used as a homesite, the building should be constructed on elevated, well-compacted fill material to minimize damage from floodwater.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Cahaba soil is in capability class IIw. The woodland ordination symbol is 10A.

CcB—Cahaba fine sandy loam, 2 to 5 percent slopes, rarely flooded

This very deep, well drained soil is on side slopes of low terraces that parallel the Tombigbee River and other large streams throughout the county. Flooding is rare, but it can occur under unusual weather conditions. Slopes are generally long and smooth. Individual areas are oblong in shape. They range from 5 to 30 acres in size.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsoil, to a depth of 36 inches, is yellowish red sandy clay loam. The substratum, to a depth of 65 inches, is yellowish red sandy loam.

Important properties of the Cahaba soil—

Permeability: Moderate in the upper part of the subsoil; moderately rapid in the lower part
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Chrysler, Izagora, and Minter soils. The moderately well drained Chrysler and Izagora soils are in flatter, less sloping positions on the landscape. Chrysler soils have a clayey texture in the upper part of the subsoil. Izagora soils have a brownish subsoil. The poorly drained Minter soils are in small depressions. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for cultivated crops, pasture, or hay. A few areas are used for woodland, and some areas are used as sites for homes.

This soil is well suited to cultivated crops. The main management concerns are the low fertility and the moderate hazard of erosion. Using a resource management system that includes terraces and diversions, stripcropping, contour tillage, no-till, and crop residue management reduces the hazard of erosion, reduces the runoff rate, and increases the infiltration of rainfall. Most crops respond well to applications of lime and fertilizer.

This soil is well suited to pasture and hay. The main management concerns are the low fertility and the moderate hazard of erosion. During the establishment of pasture, the seedbed should be prepared on the contour or across the slope if practical. Grasses such as coastal bermudagrass and bahiagrass are well suited. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, yellow-poplar, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of greenbrier, little bluestem, panicums, American holly, longleaf uniola, sweetgum, and flowering dogwood.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control the initial plant competition and facilitate mechanical planting.

This soil is poorly suited to most urban uses. The hazard of flooding is a severe limitation that is difficult to overcome. If this soil is used as a homesite, the building should be constructed on elevated, well-compacted fill material to minimize damage from floodwater.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Cahaba soil is in capability class IIe. The woodland ordination symbol is 10A.

ChB—Chrysler-Lenoir complex, gently undulating, occasionally flooded

These very deep, moderately well drained and somewhat poorly drained soils are on low terraces that are parallel to the Tombigbee River. These soils are subject to occasional flooding, generally in late winter and early spring. They occur as areas so closely intermingled that it was not possible to separate them at the scale selected for mapping. The Chrysler soil makes up about 50 percent of the map unit, and the Lenoir soil makes up about 35 percent. Most mapped areas are oblong in shape, but some are broad. They range from 10 to 200 acres in size.

The moderately well drained Chrysler soil is on convex, low ridges. Typically, the surface layer is dark grayish brown silt loam about 3 inches thick. The subsurface layer, to a depth of 6 inches, is brown silt loam. The subsoil, to a depth of 65 inches, is yellowish red silty clay loam and silty clay in the upper part, brownish yellow clay that has light gray and red mottles in the next part, and mottled light gray, yellowish brown, and red clay in the lower part.

Important properties of the Chrysler soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January through March
Shrink-swell potential: Moderate
Flooding: Occasional

The somewhat poorly drained Lenoir soil is in flat to concave swales. Typically, the surface layer is grayish brown loam about 3 inches thick. The subsurface layer, to a depth of 10 inches, is pale brown loam. The subsoil, to a depth of 80 inches, is light olive brown clay loam that has light gray mottles in the upper part, light brownish gray and light gray clay in the next part, and mottled light gray and yellowish brown clay loam in the lower part.

Important properties of the Lenoir soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 foot to 2.5 feet from December through April
Shrink-swell potential: Moderate
Flooding: Occasional

Included in mapping are a few small areas of Cahaba, Izagora, and Una soils. The well drained Cahaba soils and the moderately well drained Izagora soils are in slightly higher, more convex positions than the Chrysler and Lenoir soils. They have a loamy subsoil. The poorly drained Una soils are in slightly lower, more concave landscape positions than the Lenoir soil, and they pond water for significant periods. Included soils make up about 15 percent of the map unit, but individual areas generally are less than 5 acres in size.

Most areas of this map unit are used for woodland. A few small areas are used for cultivated crops, pasture, or hay.

This map unit is suited to cultivated crops, pasture, and hay. The wetness and occasional flooding are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed. If areas are used for pasture or hay, grasses that tolerate wet soil conditions should be selected. Common bermudagrass is a suitable pasture grass to plant.

This map unit is well suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include sweetgum, water oak, and green ash. On the basis of a 50-year site curve, the site index for loblolly pine is 100 for the Chrysler soil and 90 for the Lenoir soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year for the Chrysler soil and 2.2 cords per acre per year for the Lenoir soil. The understory vegetation consists mainly of red maple, water oak, green ash, sweetgum, panicums, waxmyrtle, greenbrier, poison ivy, and blackberry.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soils are dry. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soils and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the wetness and occasional flooding. Although it is generally not feasible to control the flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level.

This map unit has fair potential as habitat for wetland wildlife, good potential as habitat for woodland wildlife, and fair potential as habitat for openland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds or by maintaining the existing shallow ponds to provide open water areas for waterfowl and furbearing animals.

The capability subclass is IIIw for the Chrysler soil and IVw for the Lenoir soil. The woodland ordination symbol is 11W for the Chrysler soil and 9W for the Lenoir soil.

CoA—Consul clay, 0 to 2 percent slopes

This very deep, poorly drained soil is in flat or depressional positions on uplands. Micro-depressions (gilgai) ranging in depth from 2 inches to 6 inches are throughout the unit in wooded areas. Slopes are generally long, smooth, and slightly concave. Individual areas are broad or oblong in shape. They range from 20 to more than 300 acres in size.

Typically, the surface layer is dark grayish brown clay about 6 inches thick. The subsoil, to a depth of 52 inches, is light brownish gray clay that has yellowish brown mottles in the upper part and grayish brown clay that has light olive brown mottles in the lower part. The substratum, to a depth of 80 inches, is light olive brown and grayish brown shale.

Important properties of the Consul soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: 40 to 60 inches
Root zone: 40 to 60 inches
Seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from January to April
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Wilcox soils. The somewhat poorly drained Wilcox soils are in slightly higher, more convex positions, generally near the edges of delineations. They have reddish colors in the upper part of the subsoil. Also included are small areas of soils that pond water at the surface for long periods. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as pasture or hayland. A few areas are used for cultivated crops or woodland.

This soil is suited to most cultivated crops. The main limitations are the wetness and the poor tilth. Wetness delays planting and tillage operations in most years. A drainage system is necessary to remove excess surface water if this soil is used for cultivated crops. This soil can be worked only within a narrow range of moisture content and becomes cloddy if farmed when it is too wet or too dry. Returning all crop residue to the soil improves tilth, reduces crusting, increases the water-holding capacity, and increases the rate of water infiltration.

This soil is suited to pasture and hay. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. Wetness is the main management concern. Shallow ditches help to remove excess surface water. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this soil include shortleaf pine, sweetgum, post oak, and water oak (fig. 3). On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords

Figure 3.—A mixed pine and hardwood forest in an area of Consul clay, 0 to 2 percent slopes. Water ponds in micro-depressions (gilgai) during periods of heavy rainfall.

per acre per year. The understory vegetation consists mainly of panicums, blackberry, greenbrier, poison ivy, and hawthorns.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. The high seedling mortality rate is due to wetness and the clayey texture. Planting seedlings on raised beds and increasing the number of seedlings planted helps to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland wildlife, woodland wildlife, and wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Consul soil is in capability class IIIw. The woodland ordination symbol is 9C.

DeD2—Demopolis silty clay loam, 3 to 8 percent slopes, eroded

This shallow, well drained soil is on narrow ridgetops and side slopes on uplands of the Blackland Prairie. In most areas, the surface layer is a mixture of the original surface and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and shallow gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

Typically, the surface layer is dark grayish brown silty clay loam about 6 inches thick. The substratum, to a depth of 13 inches, is dark grayish brown silty clay loam that has many fragments of soft limestone (chalk) and concretions of calcium carbonate. The next layer, to a depth of 80 inches, is soft limestone (chalk).

Important properties of the Demopolis soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 10 to 20 inches
Root zone: 10 to 20 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Faunsdale, Kipling, Sumter, and Watsonia soils. Also included are areas of chalk outcrop and areas of gullied land. The somewhat poorly drained Faunsdale and Kipling soils are on the lower parts of slopes. Faunsdale soils are clayey and are very deep over bedrock. Kipling soils are acid in the upper part of the subsoil and are very deep over bedrock. Sumter and Watsonia soils are in landscape positions similar to those of the Demopolis soil. Sumter soils are moderately deep over bedrock. Watsonia soils are acid in the upper part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as pasture. A few areas are used as sites for homes or as woodland and wildlife habitat.

This soil is poorly suited to cultivated crops. The main limitations are the low available water capacity, the shallow depth to bedrock, poor tilth, and the severe hazard of erosion.

This soil is suited to pasture and hay. The droughtiness and the severe hazard of erosion are the main limitations. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet periods help to keep the soil in good condition.

This soil is suited to eastern redcedar. Demopolis soils are not suited to pine trees because they are alkaline to the surface. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of greenbrier, panicums, johnsongrass, broomsedge bluestem, Macartney rose, blackberry, poison ivy, sumac, and winged elm.

This soil has moderate to severe limitations for the management of timber. The main limitations are the seedling mortality rate and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The high seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the depth to bedrock and the very slow permeability. Septic tank absorption fields will not function properly because of the very slow permeability. An alternative system of sewage disposal should be used to dispose of sewage properly.

This soil has poor potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for whitetail deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for openland wildlife can be improved by planting grasses and shrubs in small areas around cropland and pasture and by leaving these areas undisturbed.

This Demopolis soil is in capability subclass VIe. The woodland ordination symbol is 3D.

DuD—Demopolis-Urban land complex, 0 to 8 percent slopes

This map unit consists of the shallow, well drained Demopolis soil and areas of Urban land on ridgetops in the Demopolis area. The areas of Demopolis soil and Urban land are so closely intermingled that they could not be mapped separately at the scale selected for mapping. The Demopolis soil makes up about 50 percent of the map unit, and the Urban land makes up about 40 percent. Individual areas are rectangular in shape. They range from 20 to more than 1,000 acres in size.

Typically, the Demopolis soil has a surface layer of dark grayish brown silty clay loam about 5 inches thick. The substratum, to a depth of 11 inches, is grayish brown silty clay loam. The next layer, to a depth of 60 inches, is soft limestone (chalk).

Important properties of the Demopolis soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Low
Natural fertility: High
Depth to bedrock: 10 to 20 inches
Root zone: 10 to 20 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Urban land consists of areas that are covered by sidewalks, patios, driveways, parking lots, streets, playgrounds, and buildings.

Included in mapping are a few small areas of Faunsdale, Sucarnoochee, Sumter, Vaiden, and Watsonia soils. Also included are areas of soils that have been manipulated to such an extent that the soil series can no longer be identified. Faunsdale, Sumter, and Vaiden soils are on the lower parts of slopes. Faunsdale soils have a clayey subsoil and are very deep over bedrock. Sumter soils are moderately deep over bedrock. Vaiden soils have an acid, clayey subsoil and are very deep over bedrock. Sucarnoochee soils are on narrow flood plains and are very deep over bedrock. Watsonia soils are in landscape positions similar to those of the Demopolis soil. They have an acid, clayey subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Areas of the Demopolis soil cannot be easily managed for crops, pasture, or timber or as wildlife habitat because of the limited size of the areas, the intermittent areas of Urban land, and areas of highly disturbed soils.

Areas of the Demopolis soil are poorly suited to most urban uses. This soil has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the depth to bedrock and the very slow permeability.

This map unit is not assigned to a capability subclass or a woodland ordination symbol.

FnB—Faunsdale clay loam, 1 to 3 percent slopes

This very deep, somewhat poorly drained soil is on toe slopes and around the heads of drainageways in the uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to 300 acres in size.

Typically, the surface layer is very dark grayish brown clay loam about 7 inches thick. The next layer, to a depth of 14 inches, is dark grayish brown clay loam that has olive mottles. The subsoil, to a depth of 48 inches, is light olive brown clay loam in the upper part and light olive brown clay that has brownish and grayish mottles in the lower part. The substratum, to a depth of 65 inches, is light brownish gray clay that has olive and strong brown mottles. Soft masses and concretions of calcium carbonate are throughout the profile.

Important properties of the Faunsdale soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 to 2 feet from January to April
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Sucarnoochee, Sumter, and Vaiden soils. Sucarnoochee soils are on narrow flood plains and are subject to frequent flooding. Sumter soils are in higher positions than the Faunsdale soil and are moderately deep over bedrock. Vaiden soils are in slightly higher positions than the Faunsdale soil. They are acid in the upper part of the solum. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops. A few areas are used for pasture or hay.

This soil is well suited to most cultivated crops. The main limitations are the poor tilth, the moderate hazard of erosion, and wetness. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Conservation tillage, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity. Wetness may delay planting of early season crops in most years. Proper row arrangement, field ditches, and vegetated outlets help to remove the excess water.

This soil is well suited to pasture and hay. Wetness is the main limitation. Shallow ditches help to remove excess surface water. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is suited to eastern redcedar and hardwoods. Other species that commonly grow in areas of this soil include sugarberry, green ash, and pecan. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of panicums, johnsongrass, broomsedge bluestem, blackberry, Macartney rose, winged elm, sugarberry, osage orange, broomsedge bluestem, and hawthorns.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The wetness and the clayey texture of the surface layer and subsoil restrict the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the high shrink-swell potential, the very slow permeability, the wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for openland wildlife can be improved by planting grasses and other seed-producing plants around cropland and pasture. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Faunsdale soil is in capability class IIe. The woodland ordination symbol is 3C.

FnC—Faunsdale clay loam, 3 to 5 percent slopes

This very deep, somewhat poorly drained soil is on toe slopes and side slopes in the uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

Typically, the surface layer is very dark grayish brown clay loam about 5 inches thick. The next layer, to a depth of 14 inches, is dark grayish brown silty clay. The subsoil, to a depth of 68 inches, is light olive brown clay loam in the upper part and light olive brown silty clay and clay in the lower part. The substratum, to a depth of 90 inches, is light brownish gray clay in the upper part and soft limestone (chalk) in the lower part. Soft masses and concretions of calcium carbonate are throughout the profile.

Important properties of the Faunsdale soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 to 2 feet from January to April
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Sucarnoochee, Sumter, and Vaiden soils. Sucarnoochee soils are on narrow flood plains and are subject to frequent flooding. Sumter soils are in higher positions than the Faunsdale soil and are moderately deep over bedrock. Vaiden soils are in slightly higher positions than the Faunsdale soil. They are acid in the upper part of the solum. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops. A few areas are used for pasture or hay.

This soil is suited to most cultivated crops. The main limitations are the poor tilth, the severe hazard of erosion, and wetness. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Conservation tillage, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity. Wetness may delay the planting of early season crops in most years. Proper row arrangement, shallow field ditches, and vegetated outlets help to remove excess water.

This soil is well suited to pasture and hay. Wetness is the main limitation. Shallow ditches help to remove excess surface water. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is suited to eastern redcedar and hardwoods. Other species that commonly grow in areas of this soil include sugarberry, green ash, and pecan. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of panicums, johnsongrass, broomsedge bluestem, blackberry, Macartney rose, winged elm, sugarberry, osage orange, broomsedge bluestem, and hawthorns.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The wetness and the clayey texture of the surface layer and subsoil restrict the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the high shrink-swell potential, the very slow permeability, the wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for openland wildlife can be improved by planting grasses and other seed-producing plants around cropland and pasture. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Faunsdale soil is in capability class IIIe. The woodland ordination symbol is 3C.

FsB—Freest fine sandy loam, 1 to 3 percent slopes

This very deep, moderately well drained soil is on stream terraces and toe slopes of the Blackland Prairie. Slopes are generally long and smooth. Individual areas are generally oblong. They range from 10 to more than 100 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer, to a depth of 8 inches, is light yellowish brown loam. The subsoil, to a depth of 65 inches, is yellowish brown loam that has brownish and grayish mottles in the upper part and is mottled brownish, grayish, and reddish clay loam in the lower part.

Important properties of the Freest soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 2.5 feet from January to April
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Kipling and Minter soils. Kipling soils are in slightly lower positions than the Freest soil. They are somewhat poorly drained and have a clayey subsoil. Minter soils are in small depressions and drainageways. They are poorly drained and have a clayey subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as woodland or as sites for homes.

This soil is well suited to cultivated crops. The main management concerns are the wetness and the moderate hazard of erosion. Wetness may delay planting of early season crops in some years. Shallow ditches help to remove excess surface water, and subsurface drainage helps to lower the water table. Conservation tillage, terraces, contour farming, and cover crops reduce the runoff rate and control erosion. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter help to improve and maintain tilth and the content of organic matter. Crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Wetness is a concern in late winter and early spring. Shallow ditches help to remove excess surface water. Coastal bermudagrass and bahiagrass are the most common grasses grown. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 100. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year. The understory vegetation consists mainly of little bluestem, flowering dogwood, waxmyrtle, greenbrier, yellow jessamine, panicums, oak, and hickory.

This soil has few limitations affecting the production of timber. Soil compaction and plant competition are minor management concerns. Harvesting during the drier periods helps to prevent compaction. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control initial plant competition and facilitate mechanical planting.

This map unit is suited to most urban uses. It has moderate limitations for building sites and for local roads and streets and severe limitations for most kinds of sanitary facilities. The main limitations are wetness, shrink-swell potential, and the slow permeability. A subsurface drainage system reduces the wetness. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Septic tank absorption fields will not function properly during rainy periods because of the wetness and the slow permeability. Enlarging the size of the absorption field helps to overcome these limitations.

This map unit has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey. Habitat for openland wildlife can be improved by leaving undisturbed areas of vegetation around cropland and pasture to provide food and resting areas for red fox, rabbits, quail, and songbirds.

This Freest soil is in capability subclass IIe. The woodland ordination symbol is 11A.

GdE3—Gullied land-Demopolis complex, 2 to 12 percent slopes, severely eroded

This map unit consists of areas of Gullied land and the shallow, well drained Demopolis soil on uplands of the Blackland Prairie. The areas of Gullied land and Demopolis soil are so closely intermingled that they could not be mapped separately at the scale selected for mapping. Areas of Gullied land make up about 60 percent of the map unit, and the Demopolis soil makes up about 30 percent. Individual areas are irregular in shape. They range from 5 to more than 15 acres in size.

Gullied land is a miscellaneous land type consisting of a network of shallow to deep gullies separated by narrow areas of soil or rock outcrop (fig. 4). The gullies have cut into and exposed the underlying soft limestone (chalk) bedrock. In most areas, the gullies cannot be crossed with farm implements. Most areas support little or no vegetation, except in the narrow areas of soil between gullies.

The Demopolis soil is on narrow ridges between gullies and on the fringes of delineations. Typically, the surface layer is dark grayish brown silty clay loam about 3 inches thick. The substratum, to a depth of 14 inches, is grayish brown silty clay loam that has many fragments of soft limestone (chalk) and concretions of calcium carbonate. The underlying material, to a depth of 60 inches, is soft limestone (chalk).

Important properties of the Demopolis soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 10 to 20 inches
Root zone: 10 to 20 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Sumter and Watsonia soils. Also included are areas of chalk outcrop. Sumter and Watsonia soils are in landscape positions similar to those of the Demopolis soil. Sumter soils are moderately deep over bedrock. Watsonia soils are clayey and are acid in the upper part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 0.5 acre in size.

Most areas of this map unit are idle and support sparse vegetation. Vegetation consists primarily of eastern redcedar, broomsedge bluestem, threeawns, panicums, and miscellaneous forbs.

This map unit is not suited to most agricultural and urban uses and is poorly suited to woodland. Areas of the Demopolis soil cannot be easily managed for any use because of the limited size of the areas and the intermittent areas of Gullied land. Areas require extensive cutting and filling to make them suitable for most uses. Onsite investigation and testing are needed to determine the suitability of areas of this unit for any use.

The capability subclass is VIIIs for the Gullied land and VIs for the Demopolis soil. The woodland ordination symbol for the Demopolis soil is 3D. The Gullied land is not assigned a woodland ordination symbol.

HaB—Halso fine sandy loam, 2 to 5 percent slopes

This deep, moderately well drained soil is on narrow to broad ridgetops in the uplands. Slopes are generally long and smooth. Individual areas are generally irregular in shape. They range from 10 to 150 acres in size.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsoil, to a depth of 44 inches, is red clay in the upper part, red clay that has grayish mottles in the next part, and mottled red, light gray, and strong brown clay in the lower part. The substratum, to a depth of 65 inches, is olive gray clayey shale.

Important properties of the Halso soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low

Figure 4.—An area of Gullied land-Demopolis complex, 2 to 12 percent slopes, severely eroded. Grasses and eastern redcedar provide cover for wildlife and protection from erosion in areas of the Demopolis soil. The Gullied land supports little or no vegetation.

Natural fertility: Low
Depth to bedrock: 40 to 60 inches
Root zone: 40 to 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Luverne and Smithdale soils. Luverne and Smithdale soils are in slightly higher landscape positions than the Halso soil. Luverne soils do not have bedrock within a depth of 80 inches. Smithdale soils are loamy throughout the profile. Included soils make up about 15 percent of mapped areas, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as woodland. A few areas are used for pasture or hay.

This soil is suited to cultivated crops. The main management concerns are the low fertility, poor tilth, and the moderate hazard of erosion. Measures that control erosion include early-fall seeding, minimum tillage, terraces, diversions, grassed waterways, and cover crops. Tillage should be on the contour or across the slope. Maintaining crop residue on or near the surface helps to control runoff and maintains tilth and the content of organic matter. Most crops respond well to systematic applications of fertilizer and lime.

This soil is well suited to pasture and hay. Bahiagrass and coastal bermudagrass are the main grasses grown. The main management concerns are the low fertility and the hazard of erosion. The seedbed should be prepared on the contour or across the slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of greenbrier, flowering dogwood, poison ivy, yellow jessamine, little bluestem, longleaf uniola, huckleberry, sweetgum, water oak, muscadine grape, and panicums.

This soil generally has moderate or severe limitations for the management of timber. The main limitations are the restricted use of equipment and the plant competition. The low strength restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very slow permeability, the high shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of cutbanks. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Septic tank absorption fields will not function properly during rainy periods because of the very slow permeability. An alternative method of sewage disposal is needed to dispose of sewage properly.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey.

This Halso soil is in capability subclass IIIe. The woodland ordination symbol is 9C.

HaD2—Halso fine sandy loam, 5 to 15 percent slopes, eroded

This deep, moderately well drained soil is on side slopes of the uplands. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 250 acres in size.

Typically, the surface layer is brown fine sandy loam about 4 inches thick. The subsoil, to a depth of 50 inches, is red clay that has grayish and brownish mottles in the upper part and is mottled red, light gray, and yellowish brown clay in the lower part. The substratum, to a depth of 65 inches, is gray clayey shale.

Important properties of the Halso soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: 40 to 60 inches
Root zone: 40 to 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Kinston, Luverne, and Smithdale soils. Luverne and Smithdale soils are on the upper parts of slopes and do not have shale bedrock within 60 inches of the surface. Additionally, Smithdale soils are loamy throughout. The poorly drained Kinston soils are in drainageways. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as woodland. A few areas are used for pasture or hay.

This soil is not suited to most cultivated crops. The main management concerns are the complex slopes, the low fertility, and the severe hazard of erosion.

Measures that control erosion include early-fall seeding, minimum tillage, terraces, diversions, and grassed waterways. Tillage should be on the contour or across the slope. Maintaining crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. Most crops respond well to systematic applications of fertilizer and lime.

This soil is suited to pasture and hay. Bahiagrass and coastal bermudagrass are the main grasses grown. The main management concerns are the low fertility, the complex slopes, and the hazard of erosion. The seedbed should be prepared on the contour or across the slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of muscadine grape, poison ivy, yellow jessamine, flowering dogwood, longleaf uniola, panicums, sweetgum, and water oak.

This soil generally has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and the plant competition. The low strength restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial growth of undesirable vegetation and herbicides can be used to maintain control. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the high shrink-swell potential, the very slow permeability, and low strength on sites for roads and streets. Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut slopes are stabilized. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the low strength and instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of sewage disposal is needed to dispose of sewage properly.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for white-tailed deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Halso soil is in capability subclass VIe. The woodland ordination symbol is 9C.

HbA—Harleston-Bigbee complex, gently undulating, rarely flooded

This map unit consists of the very deep, moderately well drained Harleston soil and the excessively drained Bigbee soil. It is on low terraces along the Tombigbee River. Flooding is rare, but it can occur under unusual weather conditions. The soils in this unit occur as areas so intricately intermingled that it was not practical to separate them at the scale selected for mapping. The Harleston soil makes up about 50 percent of the map unit, and the Bigbee soil makes up about 35 percent. Individual areas are oblong in shape. They range from 10 to 100 acres in size.

The Harleston soil is on middle to low positions on low ridges and in shallow swales. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 13 inches, is light yellowish brown fine sandy loam. The subsoil, to a depth of 65 inches, is brownish yellow fine sandy loam and loam in the upper part and is mottled brownish yellow, strong brown, and light gray loam and sandy clay loam in the lower part.

Important properties of the Harleston soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 2 to 3 feet from January to April
Shrink-swell potential: Low
Flooding: Rare

The Bigbee soil is on slightly higher, more convex parts of low ridges. Typically, the surface layer is brown loamy sand about 5 inches thick. The substratum, to a depth of 65 inches, is strong brown fine sand in the upper part, pale brown fine sand in the next part, and pale brown sand in the lower part.

Important properties of the Bigbee soil—

Permeability: Rapid
Available water capacity: Very low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3.5 to 6 feet from January to April
Shrink-swell potential: Very low
Flooding: Rare

Included in mapping are a few small areas of Cahaba, Chrysler, Lenoir, and Una soils. Cahaba soils are in landscape positions similar to those of the Bigbee soil. They have a loamy subsoil that is reddish in color. Chrysler and Lenoir soils are in slightly lower positions than the Harleston soil. These soils have a clayey subsoil. The poorly drained Una soils are in small depressions and are clayey throughout. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and as habitat for wildlife. A few areas are used for cultivated crops, pasture, or hay.

This map unit is suited to cultivated crops. The main limitation is the low available water capacity of the Bigbee soil and the complex ridge and swale topography. Land leveling or smoothing is necessary to improve surface drainage. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water, decrease crusting, and improve soil fertility. Using supplemental irrigation and selecting crop varieties that are adapted to droughty conditions increase the production of crops. Most crops respond well to applications of lime and fertilizer.

These soils are well suited to pasture and hay. The low available water capacity in areas of the Bigbee soil is the main limitation. Drought-tolerant grasses, such as bahiagrass and bermudagrass, are well suited. Proper stocking rates, pasture rotation, and restricted grazing during very wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of these soils include longleaf pine, shortleaf pine, yellow-poplar, water oak, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90 for the Harleston soil and 75 for the Bigbee soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine is 2.2 cords per acre per year for the Harleston soil and 1.4 cords per acre per year for the Bigbee soil. The understory vegetation consists mainly of greenbrier, blackberry, prickly pear cactus, panicums, poison oak, hawthorns, blackjack oak, sweetgum, and water oak.

These soils have moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture of the surface layer in areas of the Bigbee soil restricts the use of wheeled equipment, especially when the soil is very dry. Wetness limits the use of equipment during winter and spring months. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The moderate seedling mortality rate in areas of the Bigbee soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without adequate site preparation and maintenance. Site preparation controls the initial plant competion, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. The main limitations are flooding and wetness. Although it is generally not feasible to control flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level. A seasonal high water table is present during winter and spring, and a drainage system should be provided if buildings are constructed. Septic tank absorption fields will not function properly during rainy periods because of the wetness. Increasing the size of the absorption field or constructing the absorption field on a raised bed helps to compensate for this limitation.

This map unit has good potential as habitat for openland wildlife and poor potential as habitat for wetland wildlife. The Harleston soil has good potential as habitat for woodland wildlife, and the Bigbee soil has poor potential as habitat for woodland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The capability subclass is IIw for the Harleston soil and IIIs for the Bigbee soil. The woodland ordination symbol is 9A for the Harleston soil and 7S for the Bigbee soil.

HoA—Houlka silty clay loam, 0 to 1 percent slopes, frequently flooded

This very deep, somewhat poorly drained soil is on the flood plains of large streams. It is subject to flooding for brief periods several times each year. Individual areas are generally long and narrow. They range from 10 to 500 acres in size.

Typically, the surface layer is dark grayish brown silty clay loam about 6 inches thick. The subsoil, to a depth of 65 inches, is dark grayish brown clay in the upper part, gray silty clay that has strong brown mottles in the next part, and gray clay that has strong brown mottles in the lower part.

Important properties of the Houlka soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 to 2 feet from December through April
Shrink-swell potential: High
Flooding: Frequent

Included in mapping are a few small areas of Cahaba, Mooreville, and Kinston soils. Cahaba soils are on low knolls and terrace remnants. They are well drained and have a loamy subsoil. The moderately well drained Mooreville soils are on high parts of natural levees, adjacent to the stream channel. They are loamy throughout the profile. The poorly drained Kinston soils are in slight depressions and are loamy throughout the profile. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as pasture or woodland. A few small areas are used for hay or cultivated crops.

This soil is poorly suited to cultivated crops. The flooding and wetness are the major management concerns. Tillage and planting may be delayed in spring, and crops may be damaged by flooding in late spring and early summer. Although flooding can be controlled by a system of levees and pumps, the system is often impractical to install. Shallow ditches help to remove water from the surface.

This soil is poorly suited to pasture and hay because of the frequent flooding and the wetness. Grasses that are tolerant of wetness and flooding are recommended. Common bermudagrass is a suitable grass. Deferred grazing during wet periods helps to keep the soil and sod in good condition. A drainage system helps to remove excess water from the surface.

This soil is well suited to sweetgum, water oak, and other hardwoods. Other species that commonly grow in areas of this soil include loblolly pine, green ash, American sycamore, cherrybark oak, and yellow-poplar. On the basis of a 50-year site curve, the site index for sweetgum is 95. The average annual growth of well stocked, even-aged, unmanaged stands of sweetgum at 30 years of age is 1 cord per acre per year. The understory vegetation consists mainly of switchcane, honeylocust, poison ivy, winged elm, hackberry, blackberry, osage orange, and panicums.

This soil has moderate or severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table, the flooding, and the low strength of the subsoil restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness and the clayey texture of the surface layer. It can be reduced by planting on beds or increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. The flooding, the wetness, the very slow permeability, the high shrink-swell potential, and low strength if used for local roads and streets are severe limitations. If buildings are constructed in areas of this soil, they should be placed on pilings or on well-compacted fill material to elevate them above the expected flood level.

This soil has good potential as habitat for woodland wildlife and fair potential as habitat for openland and wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Houlka soil is in capability subclass Vw. The woodland ordination symbol is 6W.

IzA—Izagora sandy loam, 0 to 2 percent slopes, rarely flooded

This very deep, moderately well drained soil is on low terraces that are parallel to the Tombigbee River and other large streams throughout the county. Flooding is rare, but it can occur under unusual weather conditions. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 5 to about 100 acres in size.

Typically, the surface layer is very dark grayish brown sandy loam about 8 inches thick. The subsoil, to a depth of 65 inches, is light yellowish brown loam in the upper part, brownish yellow clay loam that has reddish and grayish mottles in the next part, and mottled grayish, reddish, and brownish clay loam in the lower part.

Important properties of the Izagora soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 2 to 3 feet from December to March
Shrink-swell potential: Moderate
Flooding: Rare

Included in mapping are a few small areas of Bonneau, Cahaba, Chrysler, Kinston, and Savannah soils. Bonneau and Savannah soils are on higher knolls. Bonneau soils have thick sandy surface and subsurface layers. Savannah soils have a fragipan. Cahaba soils are in slightly higher, more convex landscape positions and have a reddish subsoil. Chrysler soils are in slightly lower positions than the Izagora soil. They have reddish colors and a clayey texture in the upper part of the subsoil. The poorly drained Kinston soils are in drainageways and small depressions. Included soils make up about 10 percent of the map unit, but individual areas generally are less than 5 acres in size.

Most areas of this map unit are used for cultivated crops, pasture, or hay. A few areas are used for woodland.

This soil is well suited to cultivated crops. The main limitations are the wetness and the low fertility. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Shallow ditches help to remove excess surface water. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This map unit is well suited to pasture and hay. Wetness is a moderate limitation. Grasses such as bermudagrass and bahiagrass are well suited. Excessive surface water can be removed by shallow ditches. Deferred or restricted grazing during very wet periods helps to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the good growth of forage plants.

This soil is well suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this soil include longleaf pine, yellow-poplar, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of greenbrier, Alabama supplejack, blackberry, panicums, longleaf uniola, poison ivy, sweetgum, and water oak.

This soil has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and plant competition. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting activities should be planned during seasons of the year when the soil is dry. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation or controlled burning.

This map unit is poorly suited to most urban uses. The main limitations are flooding and wetness.

Although it is generally not feasible to control flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level. Septic tank absorption fields may not function properly because of the slow permeability and the seasonal high water table. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome these limitations.

This map unit has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Izagora soil is in capability subclass IIw. The woodland ordination symbol is 10W.

KpC—Kipling clay loam, 1 to 5 percent slopes

This very deep, somewhat poorly drained soil is on ridgetops in the uplands of the Blackland Prairie. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

Typically, the surface layer is dark yellowish brown clay loam about 7 inches thick. The subsoil, to a depth of 65 inches, is dark yellowish brown silty clay loam that has brownish and grayish mottles in the upper part, light yellowish brown silty clay that has brownish and grayish mottles in the next part, and mottled grayish, brownish, and reddish silty clay in the lower part. Soft masses and concretions of calcium carbonate are in the lower part.

Important properties of the Kipling soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to March
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Oktibbeha and Vaiden soils. Oktibbeha soils are on convex slopes and have reddish colors in the upper part of the subsoil. Vaiden soils are in slightly lower, flatter positions on ridgetops. They have a higher content of clay in the subsoil than the Kipling soil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of the Kipling soil are used as pasture. A few areas are used for cultivated crops, hay, or woodland.

This soil is suited to most cultivated crops. The main limitations are the poor tilth and the hazard of erosion. Erosion is a severe hazard when this soil is cultivated. This soil can be worked only within a narrow range of moisture content and becomes cloddy if farmed when it is too wet or too dry. Conservation tillage, terraces, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity.

This soil is well suited to pasture and hay. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of panicums, blackberry, greenbrier, poison ivy, and hawthorns.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the high shrink-swell potential, the slow permeability, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Kipling soil is in capability class IIIe. The woodland ordination symbol is 8C.

KuC—Kipling-Urban land complex, 0 to 5 percent slopes

This map unit consists of the very deep, somewhat poorly drained Kipling soil and areas of Urban land. The areas are so intricately intermingled that they could not be mapped separately at the scale selected for mapping. The Kipling soil makes up about 50 percent of the map unit, and the Urban land makes up about 40 percent. Individual areas are rectangular in shape. They range from 10 to 500 acres in size.

Typically, the surface layer of the Kipling soil is yellowish brown loam about 3 inches thick. The subsoil, to a depth of 65 inches, is yellowish brown silty clay that has grayish and reddish mottles in the upper part and mottled brownish, grayish, and reddish silty clay in the lower part.

Important properties of the Kipling soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to March
Shrink-swell potential: High
Flooding: None

Urban land consists of areas that are covered by sidewalks, patios, driveways, parking lots, streets, playgrounds, and buildings.

Included in mapping are a few small areas of Oktibbeha and Vaiden soils. Also included are areas of soils that have been manipulated to such an extent that the soil series cannot be identified. Oktibbeha soils are on convex slopes and have reddish colors in the upper part of the subsoil. Vaiden soils are in slightly lower, flatter positions on ridgetops. They have a higher content of clay in the subsoil than the Kipling soil. Included soils make up about 10 percent of the map unit, but individual areas generally are less than 5 acres in size.

Areas of the Kipling soil cannot be easily managed for crops, pasture, or timber or as wildlife habitat because of the limited size of the areas, the intermittent areas of Urban land, and areas of highly disturbed soils.

Areas of Kipling soil are poorly suited to most urban uses. This soil has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the high shrink-swell potential, the very slow permeability, the wetness, and the low strength when used as a site for roads or streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of cutbanks. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

This map unit is not assigned to a capability subclass or a woodland ordination symbol.

LaA—Lucedale fine sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on broad ridgetops of the uplands. Slopes are long and smooth. Individual areas are generally broad or oblong in shape. They range from 5 to more than 50 acres in size.

Typically, the surface layer is dark reddish brown fine sandy loam about 8 inches thick. The subsoil, to a depth of 65 inches, is dark reddish brown and dark red sandy clay loam.

Important properties of the Lucedale soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bama and Smithdale soils. Bama soils are in landscape positions similar to those of the Lucedale soil. They do not have dark red colors throughout the subsoil. Smithdale soils are on the lower parts of slopes and do not have dark red colors throughout the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as sites for homes, and a few areas are wooded.

This soil is well suited to cultivated crops (fig. 5). It has few limitations for this use, although low fertility is a management concern. The surface layer of this soil is friable and is easy to keep in good tilth. It can be tilled over a wide range of moisture content without becoming cloddy. Using conservation practices such as cover crops, minimum tillage, and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. It has no significant limitations for these uses, although low fertility is a management concern. Coastal bermudagrass and bahiagrass are the commonly grown grasses. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve the fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, yellow jessamine, panicums, poison ivy, greenbrier, flowering dogwood, and sweetgum.

This soil has few limitations affecting the production of timber, although plant competition is a minor management concern. Using proper site preparation and spraying, cutting, or girdling can eliminate unwanted weeds, brush, and trees.

This soil is well suited to most urban uses. It has no significant management concerns for most uses.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey.

This Lucedale soil is in capability class I. The woodland ordination symbol is 9A.

LvB—Luverne sandy loam, 2 to 5 percent slopes

This very deep, well drained soil is on narrow ridgetops of the uplands. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

Typically, the surface layer is dark brown sandy loam about 6 inches thick. The subsoil, to a depth of 28 inches, is red clay loam in the upper part and red clay in the lower part. The substratum, to a depth of 65 inches, is stratified yellowish red sandy clay loam and brownish yellow sandy loam.

Important properties of the Luverne soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Figure 5.—An area of Lucedale fine sandy loam, 0 to 2 percent slopes. This soil is classified as prime farmland. It is well suited to cultivated crops, such as cotton, corn, and soybeans. The cotton was planted on the contour to minimize the hazard of erosion.

Included in mapping are a few small areas of Bama and Smithdale soils. Bama and Smithdale soils are in slightly higher landscape positions than those of the Luverne soil and are loamy throughout the profile. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland. A few areas are used for cultivated crops, pasture, hay, or as sites for homes.

This soil is suited to cultivated crops. The main management concerns are the low fertility and the severe hazard of erosion. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay, and it has few limitations for these uses. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include shortleaf pine, longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, poison ivy, flowering dogwood, waxmyrtle, little bluestem, huckleberry, American beautyberry, muscadine grape, and panicums.

This soil has moderate limitations affecting the management of timber. The main limitations are the restricted use of equipment and plant competition. The low strength of the clayey subsoil restricts the use of equipment when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the moderately slow permeability, the moderate shrink-swell potential, and low strength if used as a site for local roads and streets. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Septic tank absorption fields will not function properly during rainy periods because of the moderately slow permeability. An alternative method of sewage disposal is needed to dispose of sewage properly.

This soil has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey.

This Luverne soil is in capability subclass IIIe. The woodland ordination symbol is 9C.

LvD2—Luverne sandy loam, 5 to 15 percent slopes, eroded

This very deep, well drained soil is on narrow ridgetops and side slopes of the uplands. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and gullies. Slopes are generally short and complex, but some are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 300 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam about 6 inches thick. The subsoil, to a depth of 50 inches, is red clay loam in the upper part, yellowish red sandy clay in the next part, and red sandy clay loam in the lower part. The substratum, to a depth of 65 inches, is stratified yellowish red sandy clay loam and brownish yellow sandy loam.

Important properties of the Luverne soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Bibb, Boykin, Smithdale, and Wadley soils. The poorly drained Bibb soils are on narrow flood plains. Boykin and Wadley soils are on the upper parts of slopes. They have thick sandy surface and subsurface layers. Smithdale soils are in landscape positions similar to those of the Luverne soil. They are loamy throughout the profile. Included soils make up about 15 percent of mapped areas, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and wildlife habitat. A few areas are used for pasture or hay.

This soil is poorly suited to cultivated crops. The main management concerns are the low fertility, the poor tilth, and the severe hazard of erosion. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Drop-inlet structures, installed in grassed waterways, help to prevent gullying. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, poison ivy, flowering dogwood, little bluestem, huckleberry, American beautyberry, yellow jessamine, waxmyrtle, muscadine grape, sweetgum, and water oak.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and plant competition. The low strength of the clayey subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the slope, the moderate shrink-swell potential, the moderately slow permeability, and the low strength when used as a site for roads or streets. Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut-slopes are stabilized. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the moderately slow permeability. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome this limitation.

This map unit has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Luverne soil is in capability subclass VIe. The woodland ordination symbol is 9C.

MiA—Minter loam, 0 to 1 percent slopes, occasionally flooded

This very deep, poorly drained soil is on low terraces adjacent to major streams throughout the county. It is subject to occasional flooding, generally in late winter and early spring. Most mapped areas are long and narrow, but some are broad. They range from 10 to 400 acres in size.

Typically, the surface layer is gray loam about 5 inches thick. The subsoil, to a depth of 65 inches, is light brownish gray clay loam in the upper part, gray clay loam in the next part, and light gray sandy clay loam in the lower part.

Important properties of the Minter soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December to April
Shrink-swell potential: Moderate
Flooding: Occasional

Included in this map unit are a few small areas of Cahaba, Chrysler, and Izagora soils. These soils are in slightly higher, more convex positions than the Minter soil. Cahaba soils are loamy and have a reddish subsoil. Chrysler soils are reddish in the upper part of the subsoil. Izagora soils are loamy and have a brownish subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as woodland and as wildlife habitat. A few small areas are used for cultivated crops or pasture.

This map unit is poorly suited to cultivated crops, pasture, and hay. The wetness and occasional flooding are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed. If areas are used for pasture or hay, grasses that tolerate wet soil conditions should be selected. Common bermudagrass is a suitable pasture grass to plant.

This map unit is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include sweetgum, water oak, and green ash. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of red maple, water oak, green ash, sweetgum, panicums, sweetbay, greenbrier, saw palmetto, switchcane, blackberry, Alabama supplejack, and ironwood.

This map unit has severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on beds, or it can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the wetness, the slow percolation rate, and occasional flooding. Although it is generally not feasible to control the flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level.

This map unit has fair potential as habitat for openland and woodland wildlife and good potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearing animals.

This Minter soil is in capability subclass IVw. The woodland ordination symbol is 9W.

MKA—Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, frequently flooded

This map unit consists of the very deep, moderately well drained Mooreville soil, the somewhat poorly drained Mantachie soil, and the poorly drained Kinston soil on flood plains. The soils are subject to flooding for brief periods several times each year. The composition of this map unit is variable, but the mapping was sufficiently controlled to evaluate the soils for the expected uses. Some areas mainly consist of the Mooreville soil, some areas mainly consist of Mantachie or Kinston soils, and other areas contain all three soils in variable proportions. Individual areas are generally long and narrow. They range from 20 to more than 250 acres in size.

The Mooreville soil makes up about 35 percent of the map unit. It is on the higher, more convex parts of the flood plain. Typically, the surface layer is dark grayish brown loam about 5 inches thick. The subsoil, to a depth of 48 inches, is yellowish brown clay loam that has grayish and brownish mottles. The substratum, to a depth of 72 inches, is mottled light brownish gray, yellowish brown, and brownish yellow loam.

Important properties of the Mooreville soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1.5 to 3 feet from December through March
Shrink-swell potential: Moderate
Flooding: Frequent

The Mantachie soil makes up about 30 percent of the map unit. It is in smooth, slightly convex positions at intermediate elevations of the flood plain. Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsoil, to a depth of 65 inches, is mottled yellowish brown, brown, and grayish brown sandy clay loam in the upper part, light brownish gray sandy clay loam in the next part, and grayish brown sandy clay loam in the lower part.

Important properties of the Mantachie soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 to 1.5 feet from December through April
Shrink-swell potential: Low
Flooding: Frequent

The Kinston soil makes up about 25 percent of the map unit. It is in flat to concave landscape positions, generally at the lowest elevations of the flood plain. Typically, the surface layer is brown fine sandy loam about 3 inches thick. The substratum, to a depth of 65 inches, is light brownish gray and light gray loam in the upper part and light gray and gray clay loam in the lower part.

Important properties of the Kinston soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Shrink-swell potential: Low
Flooding: Frequent

Included in mapping are a few small areas of Cahaba, Harleston, Iuka, and Izagora soils. The well drained Cahaba soils and the moderately well drained Harleston and Izagora soils are on low knolls or remnants of terraces at slightly higher elevations. They are not subject to frequent flooding. The moderately well drained Iuka soils are on high parts of the flood plain. Also included are small areas of very poorly drained soils in depressions that are subject to ponding. The included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded and are used for wildlife habitat. A few areas are used for pasture, hay, or cultivated crops.

This map unit is poorly suited to most cultivated crops. The frequent flooding and the wetness are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed.

This map unit is poorly suited to pasture and hay because of the frequent flooding and wetness. If areas are used for pasture or hay, grasses that tolerate the wet soil conditions should be selected. Common bermudagrass is a suitable grass to plant. Shallow ditches help to remove excess water from the surface.

This map unit is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include American sycamore, yellow-poplar, water oak, green ash, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 100 for the Mooreville and Mantachie soils. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year. On the basis of a 50-year site curve, the mean site index for water oak is 90 for the Kinston soil. The average annual growth of well stocked, even-aged, unmanaged stands of water oak at 30 years of age is 1 cord per acre per year. The understory vegetation consists mainly of sweetgum, blackgum, Alabama supplejack, panicums, sweetbay, green ash, and red maple.

This map unit has severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soils and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on beds or compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is not suited to most urban uses. The flooding and wetness are severe limitations for most uses. Although it is generally not feasible to control flooding, buildings can be placed on pilings or on well-compacted fill to elevate them above the expected flood level.

The Mooreville and Mantachie soils have fair potential as habitat for openland wildlife and good potential as habitat for woodland wildlife. The Kinston soil has poor potential as habitat for openland and woodland wildlife. The potential as habitat for wetland wildlife is fair for Mantachie and Kinston soils and is poor for the Mooreville soil. Habitat for openland and woodland wildlife can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Mooreville, Mantachie, and Kinston soils are in capability subclass Vw. The woodland ordination symbol is 10W for the Mooreville and Mantachie soils and 8W for the Kinston soil.

OkC—Oktibbeha clay loam, 1 to 5 percent slopes

This very deep, moderately well drained soil is on ridgetops in the uplands of the Blackland Prairie. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 10 to 150 acres in size.

Typically, the surface layer is dark brown clay loam about 4 inches thick. The subsoil, to a depth of 80 inches, is yellowish red clay in the upper part, yellowish brown clay in the next part, and light olive brown and olive gray clay in the lower part. Soft masses and concretions of calcium carbonate are in the lower part.

Important properties of the Oktibbeha soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Kipling, Sumter, Vaiden, and Watsonia soils. The somewhat poorly drained Kipling and Vaiden soils are in slightly lower positions. They do not have reddish colors in the subsoil. Sumter soils are in higher or lower positions than the Oktibbeha soil and are alkaline throughout the profile. Watsonia soils are in landscape positions similar to those of the Oktibbeha soil and are shallow over bedrock. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as pasture. A few areas are used for cultivated crops, hay, or woodland.

This soil is suited to most cultivated crops. The main limitations are the poor tilth and the hazard of erosion. Erosion is a severe hazard when this soil is cultivated. This soil can be worked only within a narrow range of moisture content and becomes cloddy if farmed when it is too wet or too dry. Conservation tillage, contour farming, cover crops, and stripcropping help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity.

This soil is well suited to pasture and hay. Tall fescuegrass, dallisgrass, and Johnsongrass are the main grasses grown (fig. 6). The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, eastern redcedar, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of panicums, blackberry, greenbrier, poison ivy, and hawthorns.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly

Figure 6.—Johnsongrass hay in an area of Oktibbeha clay loam, 1 to 5 percent slopes. This soil is well suited to the production of Johnsongrass hay. Most areas of this soil were once used for cultivated crops, such as soybeans, but are now used for pasture, hay, or woodland.

designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Oktibbeha soil is in capability class IIIe. The woodland ordination symbol is 9C.

OtD2—Oktibbeha clay, 5 to 8 percent slopes, eroded

This very deep, moderately well drained soil is on narrow ridgetops and side slopes of the Blackland Prairie. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and shallow gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 150 acres in size.

Typically, the surface layer is dark grayish brown clay about 2 inches thick. The subsoil, to a depth of 65 inches, is red clay in the upper part, mottled reddish, grayish, and brownish clay in the next part, and mottled yellowish brown and gray clay that has common soft masses and concretions of calcium carbonate in the lower part.

Important properties of the Oktibbeha soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Kipling, Luverne, and Sumter soils. Kipling soils are on the lower parts of slopes and are somewhat poorly drained. Luverne soils are on the upper parts of slopes and do not have alkaline materials within the solum. Sumter soils occur randomly and are alkaline throughout the profile. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland or pasture. A few areas are used for hay or cultivated crops.

This soil is poorly suited to cultivated crops. The main management concerns are the slope, the poor tilth, and the severe hazard of erosion. Measures that control erosion include early-fall seeding, minimum tillage, diversions, and grassed waterways. Tillage should be on the contour or across the slope.

This soil is suited to pasture and hay. The main management concerns are the slope and the severe hazard of erosion. Tall fescuegrass, dallisgrass, and johnsongrass are the most common grasses grown. The seedbed should be prepared on the contour or across the slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is suited to loblolly pine. Other species that commonly grow in areas of this soil include eastern redcedar, sugarberry, longleaf pine, shortleaf pine, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, waxmyrtle, blackberry, panicums, little bluestem, sumac, poison ivy, and honeysuckle.

This soil has moderate or severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The low strengh of the clayey subsoil restricts the use of equipment to periods when the soil is dry. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by droughtiness and the high clay content of the surface layer. It can be compensated for by increasing the number of trees planted. Planting on raised beds or subsoiling help to increase the survival of seedlings. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very slow permeability, the very high shrink-swell potential, and the low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Septic tank absorption fields will not function properly during rainy periods because of the very slow permeability. An alternative system of sewage disposal should be used to dispose of sewage properly.

This soil has good potential as habitat for woodland wildlife, fair potential as habitat for openland wildlife, and poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Oktibbeha soil is in capability subclass IVe. The woodland ordination symbol is 9C.

Pt—Pits

This map unit consists of open excavations from which the original soil and underlying material has been removed for use at another location. Pits are scattered throughout the county but are primarily in the Coastal Plain area. Individual areas are generally rectangular in shape and range from 2 to 10 acres in size.

In upland areas, this map unit has provided a source of material for constructing highways and foundations and has provided fill material. Pits in the uplands are mainly in areas of Bama, Boykin, Luverne, Smithdale, and Wadley soils. The soils have been removed to a depth of 5 to 25 feet. On stream terraces, this map unit has provided a source of sand and gravel. Pits on stream terraces are mainly in areas of Bigbee, Cahaba, Izagora, and Savannah soils. The soils have been removed to a depth of 5 to 15 feet.

Included in mapping are areas of abandoned pits. These areas consist of pits and spoil banks that are 10 to 25 feet high. The surface of these areas generally is a mixture of coarse sand and gravel. Reaction is extremely acid or very strongly acid.

Most areas of this map unit support no vegetation. A few low-quality trees and sparse stands of grass are in some of the abandoned pits. This map unit is unsuited to most uses. Extensive reclamation efforts are required to make areas suitable for use as cropland, pasture, or woodland or for urban uses. Onsite investigation and testing is needed to determine the suitability of areas of this unit for any use.

This miscellaneous area is in capability subclass VIIIs. It is not assigned a woodland ordination symbol.

Qu—Quarry

This map unit consists of open excavations from which the original soil and underlying material has been removed. Quarries are in and around the city of Demopolis. Individual areas are generally rectangular in shape and range from 25 to 80 acres in size.

This map unit has provided a source of calcium carbonate for use in the manufacture of cement. Quarries are mainly in areas of Demopolis and Sumter soils. The soils and the underlying soft limestone (chalk) have been removed to a depth of about 100 feet.

Included in mapping are areas of abandoned quarries. These areas consist of quarries that have vertical walls and spoil banks that are 10 to 25 feet high. The surface is soft limestone (chalk) bedrock. Reaction is moderately alkaline. The lower parts of some quarries pond water for periods ranging from a few days to several months.

Most areas of this map unit support no vegetation. A few low-quality trees and sparse stands of grass are in some of the abandoned quarries. This map unit is unsuited to most uses. Extensive reclamation efforts are required to make areas suitable for use as cropland, pasture, or woodland or for urban uses. Onsite investigation and testing is needed to determine the suitability of areas of this unit for any use.

This miscellaneous area is in capability subclass VIIIs. It is not assigned a woodland ordination symbol.

RvA—Riverview fine sandy loam, 0 to 2 percent slopes, occasionally flooded

This very deep, well drained soil is on high parts of natural levees adjacent to the Tombigbee River. It is subject to occasional flooding, generally in spring. Slopes are long and smooth. Individual areas are generally long and narrow. They range from 10 to 200 acres in size.

Typically, the surface layer is yellowish brown fine sandy loam about 10 inches thick. The subsoil, to a depth of 56 inches, is brown loam in the upper part and yellowish brown clay loam in the lower part. The substratum, to a depth of 65 inches, is thinly stratified yellowish brown sandy loam, brown loam, and pale brown loamy sand.

Important properties of the Riverview soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3 to 5 feet from December through April
Shrink-swell potential: Low
Flooding: Occasional

Included in mapping are a few small areas of

Bigbee, Cahaba, Una, and Urbo soils. Bigbee and Cahaba soils are on small knolls at slightly higher elevations than the Riverview soil. Bigbee soils are sandy throughout the profile. Cahaba soils have a reddish subsoil. The poorly drained Una and somewhat poorly drained Urbo soils are in small depressions and narrow drainageways. They have a clayey texture throughout the profile. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of the Riverview soil are used for pasture or woodland. A few areas are used for cultivated crops or hay.

This soil is well suited to cultivated crops. The main limitation is the occasional flooding. The planting of early season crops may be delayed in some years because of flooding. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water, decrease crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

This soil is well suited to pasture and hay. Occasional flooding is the main limitation. Proper stocking rates, pasture rotation, and restricted grazing during very wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This soil is well suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this soil include yellow-poplar, pecan, sweetgum, water oak, American sycamore, and green ash. On the basis of a 50-year site curve, the site index for loblolly pine is 100. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year. The understory vegetation consists mainly of greenbrier, poison ivy, Alabama supplejack, muscadine grape, red maple, sweetgum, and water oak.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control the initial plant competition and facilitate mechanical planting.

This soil is poorly suited to most urban uses. Flooding is the main limitation. Although it is generally not feasible to control flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level.

This map unit has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, and by promoting the establishment of desirable plants. Habitat for openland wildlife can be improved by planting seed-producing grasses and shrubs along the edges of fields and pastures.

This Riverview soil is in capability subclass IIw. The woodland ordination symbol is 11A.

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

This very deep, moderately well drained soil is on narrow to broad ridgetops on high terraces. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 5 to more than 200 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam about 8 inches thick. The subsurface layer, to a depth of 14 inches, is light yellowish brown fine sandy loam. The subsoil, to a depth of 65 inches, is light olive brown loam in the upper part and yellowish brown loam that is brittle and has grayish mottles in the lower part.

Important properties of the Savannah soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: 20 to 36 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bama, Bonneau, Izagora, and Smithdale soils. Bama soils are on slightly higher knolls or on more convex slopes than the Savannah soil. They have a reddish subsoil. Bonneau soils are in slightly lower landscape positions than the Savannah soil. They have thick sandy surface and subsurface layers. Izagora soils are in landscape positions similar to those of the Savannah soil. They do not have brittle, root-restricting layers in the subsoil. Smithdale soils are on the lower parts of slopes. They have a reddish subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as sites for homes, and a few areas are wooded.

This soil is well suited to cultivated crops. It has few limitations for this use. Tillage should be on the contour or across the slope. Maintaining crop residue on or near the surface helps to control runoff and maintains tilth and the content of organic matter. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay, and it has few limitations for these uses. Coastal bermudagrass and bahiagrass are the main grasses grown. Applications of lime and fertilizer improve fertility and increase the production of forage and hay. Proper stocking rates, pasture rotation, and restricted grazing during very wet or dry periods help to keep the pasture in good condition.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of little bluestem, yellow jessamine, panicums, flowering dogwood, southern red oak, sweetgum, and huckleberry.

This soil has few limitations affecting the production of timber. Soil compaction and plant competition are minor management concerns. Harvesting during the drier periods helps to prevent compaction. Using proper site preparation and spraying, cutting, or girdling can eliminate unwanted weeds, brush, and trees.

This soil is well suited to most urban uses. It has slight or moderate limitations for building sites and local roads and streets and moderate or severe limitations for most kinds of sanitary facilities. The main limitations are the wetness and the moderately slow permeability. A subsurface drainage system reduces the wetness. Septic tank absorption fields will not function properly during rainy periods because of the wetness and the moderately slow permeability. Enlarging the size of the absorption field helps to overcome these limitations.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for openland wildlife can be improved by leaving undisturbed areas of vegetation around cropland and pasture to provide food and resting areas.

This Savannah soil is in capability class IIw. The woodland ordination symbol is 9W.

ScC2—Searcy fine sandy loam, 5 to 8 percent slopes, eroded

This very deep, moderately well drained soil is on side slopes and toe slopes of the uplands. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Most areas have a few rills and gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of 8 inches, is light yellowish brown fine sandy loam. The subsoil, to a depth of 65 inches, is strong brown clay loam in the upper part, red clay that has brownish and grayish mottles in the next part, and mottled red and light gray clay in the lower part.

Important properties of the Searcy soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 2 to 3.5 feet from December through March
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Brantley, Oktibbeha, and Smithdale soils. Also included are small areas of severely eroded soils. Brantley soils are in landscape positions similar to those of the Searcy soil. They are well drained and have a thinner solum than the Searcy soil. Oktibbeha soils are on the lower parts of slopes. They have vertic properties in the upper part of the subsoil. Smithdale soils are on small knolls and are loamy throughout the solum. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as woodland or pasture. A few areas are used for cultivated crops or hay.

This soil is suited to cultivated crops. The main management concerns are the low fertility, the poor tilth, and the severe hazard of erosion. The surface layer of this soil is friable, but it is difficult to keep in good tilth where cultivation has mixed some of the clayey subsoil into the plow layer. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Drop-inlet structures, installed in grassed waterways, help to prevent gullying. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture and soil in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 105. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.9 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, poison ivy, huckleberry, muscadine grape, waxmyrtle, sweetgum, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The moderate rate of seedling mortality is caused by the clayey texture of the surface layer. It can be compensated for by increasing the number of trees planted. Planting on raised beds or subsoiling will increase the rate of seedling survival. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, the wetness, and the low strength when used as a site for roads or streets. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the slow permeability and the seasonal high water table. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome these limitations.

This soil has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Searcy soil is in capability subclass IVe. The woodland ordination symbol is 12C.

SdC—Smithdale loamy sand, 5 to 8 percent slopes

This very deep, well drained soil is on narrow ridgetops and side slopes of the uplands. Slopes are generally short and complex but may be long and smooth in some areas. Individual areas are irregular in shape. They range from 5 to more than 100 acres in size.

Typically, the surface layer is brown loamy sand about 7 inches thick. The subsoil, to a depth of 75 inches, is yellowish red sandy clay loam in the upper part and red sandy loam in the lower part.

Important properties of the Smithdale soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bama, Boykin, Luverne, and Wadley soils. Bama soils are in landscape positions similar to those of the Smithdale soil. The subsoil of the Bama soils does not have a significant decrease in the content of clay within a depth of 60 inches. Boykin and Wadley soils are on slightly higher parts of ridges and upper parts of slopes. They have thick sandy surface and subsurface layers. Luverne soils are on the lower parts of slopes. They are clayey in the upper part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland, pasture, or hay. Some areas are used for cultivated crops, and a few areas are used as sites for homes.

This soil is suited to cultivated crops. The main limitations are the short, complex slopes, the low fertility, and a severe hazard of erosion. Gullies form readily in areas that have a concentrated flow of water on the surface. Sheet and rill erosion is evident in most areas, and large gullies are common. Conservation tillage, terraces, contour farming, and cover crops reduce the runoff rate and help to control erosion. Drop-inlet structures, installed in grassed waterways, help to prevent gullying. Returning all crop residue to the soil or regularly adding other organic matter improves fertility and helps to maintain tilth and the content of organic matter. Most crops respond well to additions of lime and fertilizer.

This soil is well suited to pasture and hay. The main limitations are the low fertility and the severe hazard of erosion. Grasses such as coastal bermudagrass and bahiagrass are well suited. Tillage should be on the contour or across the slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the good growth of forage plants.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, sumac, greenbrier, huckleberry, sweetgum, common persimmon, and flowering dogwood.

This soil has few limitations affecting woodland management; however, competition from understory plants is a minor management concern. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicide, help to control the initial plant competition and facilitate mechanical planting.

This soil is well suited to most urban uses. It has slight limitations for most uses; however, the hazard of erosion is a concern. Only the part of the site that is used for construction should be disturbed.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Smithdale soil is in capability subclass IIIe. The woodland ordination symbol is 9A.

SdD—Smithdale loamy sand, 8 to 15 percent slopes

This very deep, well drained soil is on side slopes and narrow ridges in the uplands. Deeply incised, intermittent drainageways dissect the unit in most places. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 300 acres in size.

Typically, the surface layer is dark yellowish brown loamy sand about 5 inches thick. The subsurface layer, to a depth of 12 inches, is pale brown loamy sand. The subsoil, to a depth of 72 inches, is red sandy clay loam in the upper part and red sandy loam in the lower part.

Important properties of the Smithdale soil—

Permeability: Moderate in the upper part of the subsoil; moderately rapid in the lower part
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Boykin, Kinston, Luverne, and Wadley soils. Boykin and Wadley soils are on the upper and lower parts of slopes. They have thick sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Luverne soils are in landscape positions similar to those of the Smithdale soil. Luverne soils have clayey subsoil layers. Also included are soils on slopes of less than 8 percent and soils on slopes of more than 15 percent. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as woodland. A few areas are used for pasture or hay.

This soil is poorly suited to most cultivated crops. The complex topography and the moderately sloping to moderately steep slopes are limitations for the use of equipment. Erosion is a severe hazard. Gullies form readily in areas where the flow of water is concentrated. Drop-inlet structures, installed in grassed waterways, help to prevent the formation of gullies. If the soils are cultivated, all tillage should be on the contour or across the slope.

This soil is suited to pasture and hay. The main limitations are the slope and the severe hazard of erosion. The use of equipment is restricted by the sloping, complex topography. The seedbed should be prepared on the contour or across slope if practical. Proper stocking rates, pasture rotation, and restricted grazing during very wet or dry periods help to keep the pasture in good condition.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year. The understory vegetation consists mainly of greenbrier, brackenfern, poison oak, little bluestem, panicums, muscadine grape, flowering dogwood, and sweetgum.

This soil has slight limitations for the management of timber. Exposing the surface by removing ground cover increases the hazard of erosion. Exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding.

This soil is suited to most urban uses. It has moderate limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope and seepage. Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut-slopes are stabilized. Effluent from absorption areas may surface in downslope areas and create a hazard to health. Constructing the absorption lines on the contour and enlarging the absorption area will help to overcome this limitation.

This map unit has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Smithdale soil is in capability subclass IVe. The woodland ordination symbol is 9A.

SmF—Smithdale-Boykin-Luverne complex, 15 to 45 percent slopes

This map unit consists of the very deep, well drained Smithdale, Boykin, and Luverne soils. It is on side slopes and narrow ridges of the highly dissected uplands. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected for mapping. The Smithdale soil makes up about 40 percent of the unit, the Boykin soil makes up about 30 percent, and the Luverne soil makes up about 20 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 25 to 800 acres in size.

The Smithdale soil is generally on the upper and middle parts of slopes and on narrow ridges. Typically, the surface layer is dark yellowish brown loamy fine sand about 8 inches thick. The subsoil, to a depth of 65 inches, is red sandy clay loam in the upper part and red sandy loam in the lower part.

Important properties of the Smithdale soil—

Permeability: Moderate in the subsoil; moderately rapid in the substratum
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

The Boykin soil is generally on the upper parts of slopes. Typically, the surface layer is dark yellowish brown loamy fine sand about 5 inches thick. The subsurface layer, to a depth of 35 inches, is yellowish brown loamy fine sand. The subsoil, to depth of 65 inches, is red sandy clay loam.

Important properties of the Boykin soil—

Permeability: Rapid in the surface layer and subsurface layer; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

The Luverne soil is generally on the middle and lower parts of slopes. Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsurface layer, to a depth of 9 inches, is yellowish brown loamy fine sand. The subsoil, to a depth of 44 inches, is red clay in the upper part and mottled red and yellowish brown sandy clay loam in the lower part. The substratum, to a depth of 60 inches, is thinly stratified red sandy clay loam, yellowish brown sandy loam, and gray shale.

Important properties of the Luverne soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Bibb, Brantley, Iuka, and Wadley soils. The poorly drained Bibb and moderately well drained Iuka soils are on narrow flood plains. Brantley soils are in landscape positions similar to those of the Luverne soil. They have a higher base saturation in the lower part of the profile than the Luverne soil. Wadley soils are in landscape positions similar to those of the Boykin soil. They have sandy surface and subsurface layers more than 40 inches thick. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and as habitat for wildlife. A few areas are used for pasture or hay.

This map unit is not suited to cultivated crops, mainly because the slopes are too steep and the hazard of erosion is too severe. The irregular slope, droughtiness of the Boykin soil, and the low fertility are additional limitations.

This map unit is poorly suited to pasture and hay. The main limitations are the slope, the low fertility, the droughtiness of the Boykin soil, and the severe hazard of erosion. The more steeply sloping areas are best suited to native grasses. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of these soils include shortleaf pine, longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85 for the Smithdale and Boykin soils and 90 for the Luverne soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.1 cords per acre per year for the Smithdale and Boykin soils and 2.2 cords per acre per year for the Luverne soil. The understory vegetation consists mainly of greenbrier, poison ivy, little bluestem, brackenfern, waxmyrtle, muscadine grape, American beautyberry, red maple, sweetgum, huckleberry, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the hazard of erosion, the equipment limitation, the seedling mortality rate, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope and sandy texture of the Boykin soil restrict the use of equipment. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Cable yarding systems are safer and damage the soil less. The moderate rate of seedling mortality in areas of the Boykin soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. It is generally not suitable as a site for buildings because of the slope. Other limitations include the moderately slow permeability, the moderate shrink-swell potential, the low strength of the Luverne soil, and the sandy texture of the Boykin soil.

This map unit has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Smithdale, Boykin, and Luverne soils are in capability subclass VIIe. The woodland ordination symbol is 9R for each soil.

SnA—Steens-Yonges-Harleston complex, 0 to 2 percent slopes

This map unit consists of the very deep, somewhat poorly drained Steens soil, the poorly drained Yonges soil, and the moderately well drained Harleston soil on low terraces. The areas are so intricately intermingled that they could not be mapped separately at the scale selected for mapping. The Steens soil makes up about 35 percent of the map unit, the Yonges soil makes up about 30 percent, and the Harleston soil makes up about 25 percent. Slopes are short and smooth and range from 0 to 3 percent. Individual areas are generally broad. They range from 20 to more than 300 acres in size.

The somewhat poorly drained Steens soil is in flat to slightly concave landscape positions, generally on low to intermediate positions on low ridges. Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of 13 inches, is pale brown fine sandy loam. The subsoil, to a depth of 60 inches, is mottled yellowish brown and light brownish gray loam in the upper part, light brownish gray clay loam in the next part, and gray clay loam in the lower part.

Important properties of the Steens soil—

Permeability: Moderately slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 foot to 2.5 feet from December through April
Shrink-swell potential: Low
Flooding: None

The poorly drained Yonges soil is in swales between low ridges. Typically, the surface layer is dark grayish brown fine sandy loam about 8 inches thick. The subsoil, to a depth of 65 inches, is gray sandy clay loam and clay loam in the upper part and gray loam in the lower part.

Important properties of the Yonges soil—

Permeability: Moderately slow
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Shrink-swell potential: Low
Flooding: Occasional

The moderately well drained Harleston soil is in high, convex positions on low ridges. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 13 inches, is light yellowish brown fine sandy loam. The subsoil, to a depth of 65 inches, is brownish yellow fine sandy loam and loam in the upper part and is mottled brownish yellow, strong brown, and light gray loam and sandy clay loam in the lower part.

Important properties of the Harleston soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 2 to 3 feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bonneau and Cahaba soils. Bonneau and Cahaba soils are in positions similar to those of the Harleston soil. Bonneau soils have thick sandy surface and subsurface layers. Cahaba soils have reddish colors in the subsoil. The included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded and are used for wildlife habitat. A few areas are used for pasture, hay, or cultivated crops.

This map unit is suited to most cultivated crops. The wetness and the undulating topography are the main limitations. Land grading or smoothing and a surface drainage system are needed to maximize crop production. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation system that includes grasses and legumes increase the available water, decrease crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

This map unit is suited to pasture and hay. Wetness is the main limitation. If areas are used for pasture or hay, grasses that tolerate the wet soil conditions should be selected. Common bermudagrass is a suitable grass to plant. Shallow ditches help to remove excess water from the surface. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include American sycamore, yellow-poplar, Nuttall oak, cherrybark oak, water oak, willow oak, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90 for the Steens and Harleston soils and 95 for the Yonges soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year for the Steens and Harleston soils and 2.5 cords per acre per year for the Yonges soil. The understory vegetation consists mainly of muscadine grape, Alabama supplejack, greenbrier, poison ivy, longleaf uniola, sweetgum, blackgum, water oak, sweetbay, and red maple.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soils are dry. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soils and helps to maintain productivity. The high seedling mortality rate in areas of the Yonges soil is caused by excessive wetness. It can be reduced by planting on raised beds, or it can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. The wetness and moderately slow permeability are limitations for most uses. Areas of the Harleston soil should be selected if buildings are constructed. A seasonal high water table is present during winter and spring, and a drainage system should be provided if buildings are constructed. Septic tank absorption fields will not function properly during rainy periods because of the wetness and moderately slow permeability. Increasing the size of the absorption field or constructing the absorption field on a raised bed helps to compensate for these limitations.

The Steens and Harleston soils have good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. The Yonges soil has fair potential as habitat for openland and wetland wildlife and good potential as habitat for woodland wildlife. Habitat for openland and woodland wildlife can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The capability subclass is IIw for the Steens and Harleston soils and IIIw for the Yonges soil. The woodland ordination symbol is 9W for the Steens soil, 10W for the Yonges soil, and 9A for the Harleston soil.

SrB—Subran loam, 2 to 5 percent slopes

This very deep, moderately well drained soil is on ridgetops and side slopes of the uplands. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

Typically, the surface layer is dark yellowish brown loam about 7 inches thick. The subsoil, to a depth of 65 inches, is yellowish brown clay loam that has grayish mottles in the upper part and is mottled yellowish brown, light gray, and red clay in the lower part. Nodules of iron and manganese oxides are few to many throughout the profile.

Important properties of the Subran soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 2 to 3.5 feet from January to March
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Kipling and Smithdale soils. Kipling soils are in landscape positions similar to those of the Subran soil. They are somewhat poorly drained and have smectitic clay mineralogy. Smithdale soils are on narrow ridges and are loamy throughout the profile. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for pasture or hay. A few areas are used as woodland, for cultivated crops, or as sites for homes.

This soil is well suited to cultivated crops. The main management concern is the moderate hazard of erosion. The surface layer of this soil is friable, but it is difficult to keep in good tilth where cultivation has mixed some of the clayey subsoil into the plow layer. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Returning crop residue to the soil and growing winter cover crops reduce crusting, help to maintain tilth, and increase the rate of water infiltration. Most crops respond well to systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture and soil in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, poison ivy, huckleberry, muscadine grape, waxmyrtle, sweetgum, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment and plant competition. The clayey texture of the subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, the wetness, and the low strength when used as a site for roads or streets. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the slow permeability and the seasonal high water table. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome these limitations.

This soil has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Subran soil is in capability subclass IIe. The woodland ordination symbol is 9W.

StA—Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded

This very deep, somewhat poorly drained soil is on flood plains of streams in the Blackland Prairie. It is subject to flooding for brief periods several times each year. Individual areas are generally long and narrow. They range from 10 to 1,000 acres in size.

Typically, the surface layer is dark grayish brown clay about 10 inches thick. The next layer, to a depth of 18 inches, is dark grayish brown clay that has a few olive yellow mottles. The subsoil, to a depth of 65 inches, is dark grayish brown clay that has brownish and olive mottles in the upper part and is mottled gray, light olive brown, and strong brown clay in the lower part.

Important properties of the Sucarnoochee soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High

Figure 7.—A catfish pond in an area of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded. Significant areas of this map unit are being converted to ponds and are intensely managed for catfish production.

Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from January to April
Shrink-swell potential: High
Flooding: Frequent

Included in mapping are a few small areas of Kipling, Tuscumbia, and Vaiden soils. The Kipling and Vaiden soils are in slightly higher positions on the edges of delineations. They are acid in the upper part of the subsoil. The poorly drained Tuscumbia soils are in slight depressions. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as pasture. A few areas are used for hay, cultivated crops, or woodland. A large acreage of this unit has been converted to catfish ponds (fig. 7).

This soil is poorly suited to cultivated crops. The flooding and wetness are the major management concerns. Tillage and planting may be delayed in spring, and crops may be damaged by flooding in late spring and early summer. Although flooding can be controlled by a system of levees and pumps, the system is often impractical to install. Shallow ditches help to remove water from the surface.

This soil is poorly suited to pasture and hay because of the frequent flooding and the wetness. Grasses that are tolerant of wetness and flooding are recommended. Dallisgrass is a suitable grass. Deferred grazing during wet periods helps to keep the soil and sod in good condition. A drainage system helps to remove excess water from the surface.

This soil is well suited to cherrybark oak, sweetgum, water oak, and other hardwoods. It is generally not suited to pine trees because it is alkaline within 20 inches of the surface. Other species that commonly grow in areas of this soil include green ash, American sycamore, willow oak, and yellow-poplar. On the basis of a 50-year site curve, the site index for cherrybark oak is 100. The average annual growth of well stocked, even-aged, unmanaged stands of cherrybark oak at 30 years of age is 1.1 cords per acre per year. The understory vegetation consists mainly of switchcane, honey locust, poison ivy, winged elm, sweetgum, sugarberry, green ash, blackberry, osage orange, and panicums.

This soil has moderate or severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table, the flooding, and the low strength of the subsoil restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness and the clayey texture of the surface layer. It can be reduced by planting on beds or increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. The flooding, the wetness, the very slow permeability, the high shrink-swell potential, and low strength if used for local roads and streets are severe limitations. If buildings are constructed in areas of this soil, they should be placed on pilings or on well-compacted fill material to elevate them above the expected flood level.

This soil has good potential as habitat for woodland wildlife and fair potential as habitat for openland and wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Sucarnoochee soil is in capability subclass IVw. The woodland ordination symbol is 6W.

SuE2—Sumter silty clay loam, 5 to 12 percent slopes, eroded

This moderately deep, well drained soil is on side slopes and narrow ridges in the uplands of the Blackland Prairie. In most areas, the surface layer is a mixture of the original surface and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and shallow gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

Typically, the surface layer is dark grayish brown silty clay loam about 6 inches thick. The subsoil, to a depth of 22 inches, is light olive brown silty clay loam that has common soft masses of calcium carbonate. The substratum, to a depth of 60 inches, is soft limestone (chalk).

Important properties of the Sumter soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 20 to 40 inches
Root zone: 20 to 40 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Demopolis, Faunsdale, Sucarnoochee, and Watsonia soils. Demopolis and Watsonia soils are on narrow ridges. They are shallow over bedrock. Faunsdale soils are on toe slopes. They are very deep over bedrock. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for pasture or woodland.

This soil is poorly suited to cultivated crops. The main limitations are the slope, poor tilth, and the severe hazard of erosion. The surface layer is difficult to keep in good tilth where cultivation has mixed some of the subsoil into the plow layer. Contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth.

This soil is suited to pasture and hay. The short, complex slopes and the severe hazard of erosion are the main limitations. The seedbed should be prepared on the contour or across the slope where practical. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is suited to the production of eastern redcedar. It is generally not suited to the commercial production of pine trees because of alkaline materials within a depth of 20 inches. On the basis of a 50-year site curve, the site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of johnsongrass, honeylocust, sugarberry, blackberry, panicums, Macartney rose, winged elm, and osage orange.

This soil has moderate or severe limitations for the management of timber. The main limitations are the hazard of erosion, the restricted use of equipment, the seedling mortality rate, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, log landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The clayey texture of the surface layer restricts the use of equipment when the soil is wet. Harvesting activities should be planned for the drier parts of the year. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the depth to bedrock, the very slow permeability, and the moderate shrink-swell potential. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage that results from shrinking and swelling. Septic tank absorption fields will not function properly during rainy periods because of the very slow permeability. An alternative system of sewage disposal should be used to dispose of sewage properly. Maintaining the existing plant cover during construction helps to control erosion.

This soil has fair potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the establishment of desirable plants.

This Sumter soil is in capability subclass VIe. The woodland ordination symbol is 3C.

SwB—Sumter-Watsonia complex, 1 to 3 percent slopes

This map unit consists of the moderately deep, well drained Sumter soil and the shallow, well drained Watsonia soil. It is on narrow ridgetops on uplands of the Blackland Prairie. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected for mapping. The Sumter soil makes up about 50 percent of the map unit and the Watsonia soil makes up about 30 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 5 to 100 acres in size.

The Sumter soil is on the flatter, less convex parts of ridgetops. Typically, the surface layer is dark grayish brown silty clay loam about 5 inches thick. The subsoil, to a depth of 31 inches, is light olive brown silty clay that has common soft masses of calcium carbonate in the upper part and light yellowish brown silty clay that has common soft masses of calcium carbonate in the lower part. The substratum, to a depth of 60 inches, is soft limestone (chalk).

Important properties of the Sumter soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 20 to 40 inches
Root zone: 20 to 40 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

The Watsonia soil is on the crests of ridges. Typically, the surface layer is brown clay about 3 inches thick. The subsoil, to a depth of 17 inches, is yellowish red clay in the upper part and yellowish brown clay in the lower part. The substratum, to a depth of 80 inches, is soft limestone (chalk).

Important properties of the Watsonia soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Low

Natural fertility: Medium
Depth to bedrock: 10 to 20 inches
Root zone: 10 to 20 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Demopolis, Faunsdale, and Oktibbeha soils. Also included are a few small areas of rock outcrop. Demopolis soils are in landscape positions similar to those of the Sumter soil. They are shallow over bedrock. Faunsdale soils are on the lower parts of slopes and are very deep over bedrock. Oktibbeha soils are in landscape positions similar to those of the Watsonia soil. They are acid in the upper part of the subsoil and are very deep over bedrock. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as pasture or are idle. A few small areas are used as woodland and wildlife habitat.

This map unit is suited to cultivated crops. The main limitations are the low available water capacity, the depth to bedrock, and poor tilth. Erosion is a moderate hazard when these soils are cultivated. These soils can be worked only within a narrow range of moisture content, and they become cloddy if tilled when too wet or too dry. Conservation tillage, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity.

This map unit is suited to pasture and hay. Droughtiness is the main limitation. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet periods help to keep the soil in good condition.

Areas of the Sumter soil are suited to eastern redcedar. This soil is not suited to pine trees because it is alkaline to the surface. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. Areas of the Watsonia soil are suited to loblolly pine; however, because they are intermingled with areas of the Sumter soil, onsite delineation of soil boundaries is recommended before planting pine trees. On the basis of a 50-year site curve, the mean site index is 75 for loblolly pine. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 1.4 cords per acre per year. The understory vegetation consists mainly of greenbrier, panicums, johnsongrass, broomsedge bluestem, Macartney rose, blackberry, poison ivy, sumac, winged elm, and sugarberry.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the equipment limitation, the seedling mortality rate, and plant competition. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Harvesting activities should be planned for drier periods. The high seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This map unit is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the depth to bedrock, the very slow permeability, and the shrink-swell potential. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of waste disposal is needed to dispose of sewage properly.

This map unit has fair potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for whitetail deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for openland wildlife can be improved by planting grasses and shrubs in small areas around cropland and pasture and by leaving these areas undisturbed.

The Sumter and Watsonia soils are in capability subclass IIIe. The woodland ordination symbol is 3C for the Sumter soil and 7D for the Watsonia soil.

SwC2—Sumter-Watsonia complex, 3 to 8 percent slopes, eroded

This map unit consists of the moderately deep, well drained Sumter soil and the shallow, moderately well drained Watsonia soil. It is on side slopes and narrow ridges on uplands of the Blackland Prairie. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected for mapping. In most areas, the surface layer is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has been removed. Some areas have a few rills and shallow gullies. The Sumter soil makes up about 50 percent of the map unit and the Watsonia soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 5 to 300 acres in size.

The Sumter soil is on the middle and upper parts of slopes. Typically, the surface layer is dark grayish brown silty clay loam about 8 inches thick. The subsoil, to a depth of 28 inches, is light olive brown silty clay that has yellowish brown mottles and common soft masses of calcium carbonate. The substratum, to a depth of 60 inches, is soft limestone (chalk).

Important properties of the Sumter soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 20 to 40 inches
Root zone: 20 to 40 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: Moderate
Flooding: None

The Watsonia soil is on the lower parts of slopes. Typically, the surface layer is brown clay about 4 inches thick. The subsoil, to a depth of 17 inches, is yellowish red clay in the upper part and yellowish brown clay in the lower part. The substratum, to a depth of 80 inches, is soft limestone (chalk).

Important properties of the Watsonia soil—

Permeability: Very slow
Available water capacity: Low
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: 10 to 20 inches
Root zone: 10 to 20 inches
Seasonal high water table: More than 6 feet deep
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Demopolis, Faunsdale, Oktibbeha, and Sucarnoochee soils. Also included are a few small areas of rock outcrop. Demopolis soils are in landscape positions similar to those of the Sumter soil. They are calcareous to the surface and are shallow over bedrock. Faunsdale soils are on the lower parts of slopes and are very deep over bedrock. Oktibbeha soils are in landscape positions similar to those of the Watsonia soil. They are acid in the upper part of the subsoil and are very deep over bedrock. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are used as pasture or are idle. A few small areas are used for cultivated crops or as woodland and wildlife habitat.

This map unit is poorly suited to cultivated crops. The main limitations are the poor tilth, the depth to bedrock, and the hazard of erosion. Erosion is a severe hazard when these soils are cultivated. Sheet and rill erosion is evident in most areas, and shallow gullies are common. These soils can be worked only within a narrow range of moisture content and become cloddy if tilled when it is too wet or too dry. Conservation tillage, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity.

This map unit is suited to pasture and hay. The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet periods help to keep the soil in good condition.

Areas of the Sumter soil are suited to eastern redcedar. This soil is not suited to pine trees because it is alkaline to the surface. On the basis of a 50-year curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. Areas of the Watsonia soil are suited to loblolly pine; however, because they are intermingled with areas of the Sumter soil, onsite delineation of the soil boundaries is recommended before planting pine trees. On the basis of a 50-year site curve, the mean site index is 75 for loblolly pine. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 1.4 cords per acre per year. The understory vegetation consists mainly of greenbrier, panicums, johnsongrass, broomsedge bluestem, Macartney rose, blackberry, poison ivy, sumac, winged elm, and sugarberry.

This map unit has moderate limitations for the management of timber. The main limitations are the equipment limitation, the seedling mortality rate, and plant competition. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Harvesting and management activities should be planned for seasons of the year when the soils are dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation.

The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This map unit is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the depth to bedrock, the very slow permeability, the shrink-swell potential, and low strength on sites for roads and streets. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability. An alternate method of waste disposal is needed to dispose of sewage properly.

This map unit has fair potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for whitetail deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for openland wildlife can be improved by planting grasses and other seed-producing plants in small areas around cropland and pasture. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Sumter and Watsonia soils are in capability subclass IVe. The woodland ordination symbol is 3C for the Sumter soil and 7D for the Watsonia soil.

TsA—Tuscumbia clay loam, 0 to 1 percent slopes, frequently flooded

This very deep, poorly drained soil is in flat to concave landscape positions on flood plains of streams in the Blackland Prairie. It is subject to flooding for brief periods several times each year. Individual areas are generally long and narrow. They range from 10 to 150 acres in size.

Typically, the surface layer is very dark gray clay loam about 7 inches thick. The subsoil, to a depth of 65 inches, is gray silty clay loam in the upper part, gray silty clay in the next part, and gray clay in the lower part.

Important properties of the Tuscumbia soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 0.5 to 1.5 feet from December through April
Shrink-swell potential: High
Flooding: Frequent

Included in mapping are a few small areas of Houlka and Sucarnoochee soils. The somewhat poorly drained Houlka and Sucarnoochee soils are in slightly higher positions on the flood plain. Houlka soils are acid in the upper part of the solum. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used as pasture or woodland. A few small areas are used for hay or cultivated crops.

This soil is poorly suited to cultivated crops. The flooding and wetness are the major management concerns. Tillage and planting may be delayed in spring, and crops may be damaged by flooding in late spring and early summer. Although flooding can be controlled by a system of levees and pumps, the system is often impractical to install. Shallow ditches help to remove water from the surface.

This soil is poorly suited to pasture and hay because of the frequent flooding and the wetness. Grasses that are tolerant of wetness and flooding are recommended. Deferred grazing during wet periods helps to keep the soil and sod in good condition. A drainage system helps to remove excess water from the surface.

This soil is well suited to sweetgum and other hardwoods. It is generally not suited to pine trees because it is alkaline within 20 inches of the surface. Other species that commonly grow in areas of this soil include green ash, water oak, and overcup oak. On the basis of a 50-year site curve, the site index for sweetgum is 85. The average annual growth of well stocked, even-aged, unmanaged stands of sweergum at 30 years of age is 1 cord per acre per year. The understory vegetation consists mainly of switchcane, honeylocust, poison ivy, winged elm, sugarberry, sweetgum, and panicums.

This soil has moderate or severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table, the flooding, and the low strength of the subsoil restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness and the clayey texture of the surface layer. It can be reduced by planting on beds or increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. The flooding, the wetness, the very slow permeability, the high shrink-swell potential, and low strength if used for local roads and streets are severe limitations. If buildings are constructed in areas of this soil, they should be placed on pilings or on well-compacted fill material to elevate them above the expected flood level.

This soil has fair potential as habitat for openland and woodland wildlife and good potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Tuscumbia soil is in capability subclass Vw. The woodland ordination symbol is 5W.

UnA—Una silty clay, ponded

This very deep, poorly drained soil is in old oxbows and other shallow depressions on the flood plain of the Tombigbee River and on low terraces. Slopes are smooth and concave. Most areas are subject to frequent flooding and pond water for several months in most years. Individual areas vary in shape from circular to long and narrow. They range from 5 to 50 acres in size.

Important properties of the Una soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, from 2 feet above the surface to a depth of 0.5 foot from December through June
Shrink-swell potential: High
Flooding: Frequent

Included in mapping are a few small areas of Urbo soils. The somewhat poorly drained Urbo soils are in slightly higher, more convex positions than the Una soil. Included soils make up about 5 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of the Una soil are used as woodland and as habitat for wildlife.

This soil is not suited to cultivated crops, pasture, or hay. The wetness, ponding, and flooding are severe limitations for these uses.

This map unit is suited to the production of water tupelo and baldcypress (fig. 8). Other species that commonly grow in areas of this soil include overcup oak, water hickory, black willow, red maple, sweetgum, and swamp tupelo. On the basis of a 50-year site curve, the site index for water tupelo is 65. The average annual growth of fully stocked, even-aged, unmanaged stands of water tupelo at 30 years of age is 0.5 cords per acre per year. The understory vegetation consists mainly of sweetbay, black alder, red maple, greenbrier, switchcane, Alabama supplejack, and palmetto.

The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table, the flooding, and the ponding restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be compensated for by planting on beds or increasing the number of trees planted. Plant competition from undesirable plants can prevent adequate natural or artificial reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is not suited to most urban uses. The ponding, wetness, and frequent flooding are severe limitations for most uses. If buildings and roads are constructed in areas of this soil, they should be constructed on well-compacted fill to elevate them above the expected level of flooding.

This soil has very poor potential as habitat for openland and woodland wildlife and good potential as habitat for wetland wildlife. Habitat for openland and woodland wildlife can be improved by planting appropriate vegetation, by maintaining the existing plant cover, and by promoting the establishment of desirable plants. Habitat for wetland wildlife can be improved by providing more open water areas for waterfowl and furbearers and by planting mast-producing trees.

Figure 8.—An area of Una silty clay, ponded. This soil is suited to trees that are tolerant of wet soil conditions. The swollen or enlarged lower trunk of the tupelo gum and baldcypress trees is an adaptation that helps the trees tolerate the excessive wetness in areas of this soil.

This Una soil is in capability subclass VIIw. The woodland ordination symbol is 6W.

Ur—Urban land

This map unit consists mainly of high-density residential areas and commercial and industrial developments. Generally, these areas have been graded and smoothed. In most areas, the original soils were altered beyond recognition or are covered by buildings or pavement. The original soils were altered by cutting and filling, shaping and grading, compacting, or covering with concrete and asphalt. Individual areas range from 5 to 200 acres in size. They are primarily in the Demopolis and Linden areas.

Included in mapping are a few small areas of unaltered soils, mostly Demopolis, Kipling, Sumter, and Vaiden soils. Included soils generally make up less than 10 percent of the map unit.

Onsite investigation and testing are needed to determine the suitability of areas of this unit for any use.

This map unit is in capability subclass VIIIs. It is not assigned a woodland ordination symbol.

UuB—Urbo-Mooreville-Una complex, gently undulating, frequently flooded

This map unit consists of the very deep, somewhat poorly drained Urbo soil, the moderately well drained Mooreville soil, and the poorly drained Una soil on the flood plain of the Tombigbee River. The soils are subject to flooding for brief periods in most years, generally in late winter or spring. The areas are so intricately intermingled that they could not be mapped separately at the scale selected for mapping. The Urbo soil makes up about 40 percent of the map unit, the Mooreville soil makes up about 30 percent, and the Una soil makes up about 20 percent. Slopes are short and smooth and range from 0 to 3 percent. Individual areas are generally broad. They range from 50 to more than 600 acres in size.

The somewhat poorly drained Urbo soil is in flat to slightly concave landscape positions, generally on low to intermediate positions on low ridges. Typically, the surface layer is dark grayish brown silty clay loam about 8 inches thick. The subsoil, to a depth of 65 inches, is brown clay that has yellowish brown mottles in the upper part, gray clay that has yellowish brown mottles in the next part, and light gray clay that has yellowish brown and red mottles in the lower part.

Important properties of the Urbo soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 foot to 2 feet from December through April
Shrink-swell potential: Moderate
Flooding: Frequent

The moderately well drained Mooreville soil is in high, convex positions on low ridges. Typically, the surface layer is dark grayish brown loam about 5 inches thick. The subsoil, to a depth of 60 inches, is yellowish brown clay loam that has grayish and brownish mottles in the upper part and is mottled grayish and brownish loam in the lower part.

Important properties of the Mooreville soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1.5 to 3 feet from January through March
Shrink-swell potential: Moderate
Flooding: Frequent

The poorly drained Una soil is in swales, sloughs, and other depressional areas at the lowest elevations on the flood plain. Typically, the surface layer is very dark brown silty clay about 3 inches thick. The subsoil, to a depth of 60 inches, is gray clay that has brownish mottles.

Important properties of the Una soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, about 2 feet above the surface to a depth of 0.5 foot from December through June
Shrink-swell potential: Moderate
Flooding: Frequent

Included in mapping are a few small areas of Cahaba, Chrysler, and Riverview soils. The well drained Cahaba and moderately well drained Chrysler soils are on low knolls or remnants of terraces at slightly higher elevations. They have a reddish subsoil. Riverview soils are in landscape positions similar to those of the Mooreville soil. They do not have low chroma mottles in the upper part of the subsoil. The included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded and are used for wildlife habitat. A few areas are used for pasture, hay, or cultivated crops.

This map unit is not suited to most cultivated crops. The frequent flooding and the wetness are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed.

This map unit is poorly suited to pasture and hay because of the frequent flooding and wetness. If areas are used for pasture or hay, grasses that tolerate the wet soil conditions should be selected. Common bermudagrass is a suitable grass to plant. Shallow ditches help to remove excess water from the surface.

This map unit is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this map unit include American sycamore, yellow-poplar, Nuttall oak, overcup oak, cherrybark oak, water oak, green ash, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95 for the Urbo soil and 100 for the Mooreville soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year for the Urbo soil and 2.7 cords per acre per year for the Mooreville soil. On the basis of a 50-year site curve, the mean site index for water tupelo is 65 for the Una soil. The average annual growth of well stocked, even-aged, unmanaged stands of water tupelo at 30 years of age is 0.5 cords per acre per year. The understory vegetation consists mainly of muscadine grape, Alabama supplejack, greenbrier, poison ivy, longleaf uniola, sweetgum, blackgum, water oak, sweetbay, green ash, and red maple.

This map unit has severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soils and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on raised beds, or it can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This map unit is not suited to most urban uses. The flooding and wetness are severe limitations for most uses. Although it is generally not feasible to control flooding, buildings can be placed on pilings or on well-compacted fill to elevate them above the expected flood level.

The Urbo and Mooreville soils have fair potential as habitat for openland wildlife and good potential as habitat for woodland wildlife. The Una soil has poor potential as habitat for openland and woodland wildlife. The potential as habitat for wetland wildlife is fair for the Urbo and Una soils and is poor for the Mooreville soil. Habitat for openland and woodland wildlife can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

The Urbo, Mooreville, and Una soils are in capability subclass Vw. The woodland ordination symbol is 10W for the Urbo soil, 10W for the Mooreville soil, and 6W for the Una soil.

VdA—Vaiden silty clay, 0 to 1 percent slopes

This very deep, somewhat poorly drained soil is in flat or slightly convex positions on uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are generally broad and oblong in shape. They range from 15 to 600 acres in size.

Typically, the surface layer is dark brown silty clay about 4 inches thick. The subsoil, to a depth of 83 inches, is yellowish brown clay that has grayish mottles in the upper part and light olive brown and yellowish brown clay that has grayish mottles in the lower part. Soft masses and concretions of calcium carbonate are in the lower part. The substratum, to a depth of 95 inches, is soft limestone (chalk).

Important properties of the Vaiden soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 to 2 feet from January to April
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Kipling and Oktibbeha soils. Also included are poorly drained soils in small depressions. Kipling soils are in landscape positions similar to those of the Vaiden soil. They have less clay in the subsoil than the Vaiden soil. Oktibbeha soils are in slightly higher, more convex positions. They have reddish colors in the upper part of the subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for cultivated crops, pasture, or hay. A few areas are used as woodland or as sites for homes.

This soil is suited to most cultivated crops. The main limitations are the wetness and the poor tilth.

Wetness delays planting and tillage operations in most years. Shallow ditches help to remove excess surface water. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Returning all crop residue to the soil improves tilth, reduces crusting, increases the water-holding capacity, and increases the rate of water infiltration.

This soil is well suited to pasture and hay. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. Wetness is the main management concern. Shallow ditches help to remove excess surface water. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is suited to loblolly pine. Other species that commonly grow in areas of this soil include shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 80. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 1.8 cords per acre per year. The understory vegetation consists mainly of panicums, blackberry, greenbrier, poison ivy, and hawthorns.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. The high seedling mortality rate is due to wetness and the clayey texture. Planting seedlings on raised beds and increasing the number of seedlings planted helps to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has fair potential as habitat for openland wildlife, good potential as habitat for woodland wildlife, and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Vaiden soil is in capability class IIIw. The woodland ordination symbol is 8C.

WdD—Wadley loamy fine sand, 5 to 15 percent slopes

This very deep, somewhat excessively drained Wadley soil is on side slopes and narrow ridges in the uplands. Slopes are generally short and complex, but they may be long and smooth in some areas. Individual areas are irregular in shape. They range from 10 to 250 acres in size.

Typically, the surface layer is brown loamy fine sand about 9 inches thick. The subsurface layer, to a depth of 57 inches, is yellowish brown loamy fine sand in the upper part and brownish yellow loamy fine sand in the lower part. The subsoil, to a depth of 80 inches, is yellowish red sandy loam.

Important properties of the Wadley soil—

Permeability: Rapid in the surface layer and subsurface layer; moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: More than 6 feet deep

Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Boykin, Bibb, Luverne, and Smithdale soils. The poorly drained Bibb soils are on narrow flood plains. Boykin soils are in landscape positions similar to those of the Wadley soil. They have a sandy texture to a depth of 20 to 40 inches. Luverne and Smithdale soils are on the lower parts of slopes. They do not have thick sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded. A few areas are used for pasture or hay.

This map unit is poorly suited to most cultivated crops. The main limitations are the low available water capacity, the low fertility, and the hazard of erosion. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Returning all crop residue to the soil helps to maintain tilth and increases the water-holding capacity. Most crops respond well to applications of lime and frequent, light applications of fertilizer.

These soils are suited to pasture and hay. Coastal bermudagrass and bahiagrass are well suited. The main limitations are the low fertility, the low available water capacity, and the hazard of erosion. The leaching of plant nutrients is a management concern. Frequent, light applications of nitrogen are necessary to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition. Tillage should be on the contour or across the slope.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of these soils include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of turkey oak, sandjack oak, blackjack oak, brackenfern, common persimmon, poison oak, prickly pear cactus, little bluestem, and panicums.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned during seasons of the year when the soils are moist. The moderate seedling mortality rate can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed fire.

This soil is suited to most urban uses. It has moderate limitations for building sites and local roads and streets and slight to severe limitations for most kinds of sanitary facilities. The main limitations are the slope and seepage. Cutbanks are unstable and are subject to slumping. Support beams should be used to maintain the stability of the cutbanks. If septic tank absorption fields are used, effluent can surface in downslope areas and create a hazard to health. Increasing the length of the absorption lines and constructing the lines on the contour will help to compensate for this concern. The sandy texture, the low fertility, and the low available water capacity are additional concerns. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential as habitat for openland wildlife, poor potential as habitat for woodland wildlife, and very poor potential as habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the 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 seed-producing plants for quail and turkey.

This Wadley soil is in capability subclass VIs. The woodland ordination symbol is 9S.

WxB—Wilcox clay, 1 to 5 percent slopes

This deep, somewhat poorly drained soil is on narrow to broad ridgetops in the uplands. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 20 to 250 acres in size.

Typically, the surface layer is very dark grayish brown clay about 4 inches thick. The subsoil, to a depth of 53 inches, is yellowish red clay in the upper part; mottled red, light gray, and brownish yellow clay in the next part; and light gray clay in the lower part. The substratum, to a depth of 65 inches, is light olive brown shale.

Important properties of the Wilcox soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low

Depth to bedrock: 40 to 60 inches
Root zone: 40 to 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to April
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Consul, Halso, and Luverne soils. Consul soils are in flat to slightly concave landscape positions on ridgetops and are poorly drained. Halso and Luverne soils are on higher knolls. They have less clay in the subsoil than the Wilcox soil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland and as habitat for wildlife. A few areas are used for cultivated crops or pasture.

This soil is suited to most cultivated crops. The main limitations are the poor tilth, the wetness, and the hazard of erosion. Erosion is a moderate hazard when this soil is cultivated. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Conservation tillage, strip crops, contour farming, and cover crops help to reduce the runoff rate and control erosion. Returning all crop residue to the soil improves tilth, reduces crusting, and increases the water-holding capacity.

This soil is suited to pasture and hay. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown. The seedbed should be prepared on the contour or across the slope. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of panicums, blackberry, greenbrier, poison ivy, waxmyrtle, post oak, and hawthorns.

This soil has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned during seasons of the year when the soil is dry. Planting rates can be increased to compensate for the high rate of seedling mortality. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of cutbanks. Properly designing foundations and footings and diverting runoff water away from buildings help to prevent the structural damage that results from shrinking and swelling. Roads and streets can be built if they are designed to compensate for the instability of the subsoil. Septic tank absorption fields will not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

This soil has good potential as habitat for openland and woodland wildlife and poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Wilcox soil is in capability class IIIe. The woodland ordination symbol is 9C.

WxD2—Wilcox clay, 5 to 15 percent slopes, eroded

This deep, somewhat poorly drained soil is on side slopes and narrow ridgetops in the uplands. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Most areas have a few rills and gullies. Slopes are generally short and complex, but some are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 350 acres in size.

Typically, the surface layer is dark grayish brown clay about 5 inches thick. The subsoil, to a depth of 46 inches, is yellowish red clay that has gray mottles in the upper part and is mottled red, gray, and yellowish brown clay in the lower part. The substratum, to a depth of 65 inches, is light olive brown shale.

Important properties of the Wilcox soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: 40 to 60 inches
Root zone: 40 to 60 inches
Seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to April
Shrink-swell potential: Very high
Flooding: None

Included in mapping are a few small areas of Halso, Houlka, Kinston, and Luverne soils. Halso and Luverne soils are on the upper parts of slopes and narrow ridgetops. They have less clay in the subsoil than the Wilcox soil. Houlka and Kinston soils are on narrow flood plains and are subject to frequent flooding. They are generally grayish in color. Included soils make up about 15 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland and as habitat for wildlife. A few areas are used for pasture or hay.

This soil is poorly suited to cultivated crops. The main management concerns are the low fertility, the poor tilth, and the severe hazard of erosion. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Drop-inlet structures, installed in grassed waterways, help to prevent gullying. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Most crops respond well to systematic applications of lime and fertilizer.

This soil is suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Tillage should be on the contour or across the slope to reduce soil losses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

This soil is well suited to loblolly pine. Other species that commonly grow in areas of this soil include longleaf pine, shortleaf pine, post oak, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, poison ivy, flowering dogwood, little bluestem, huckleberry, American beautyberry, yellow jessamine, waxmyrtle, muscadine grape, sweetgum, and water oak.

This map unit has moderate to severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The low strength of the clayey subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The moderate rate of seedling mortality is caused by the clayey texture of the surface layer. It can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, and the low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of cutbanks. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has a low shrink-swell potential. Roads and streets should be designed to offset the limited ability of this soil to support a load. Septic tank absorption fields may not function properly because of the moderately slow permeability. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome this limitation.

This soil has good potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of existing 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 seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Wilcox soil is in capability class VIe. The woodland ordination symbol is 9C.

YoA—Yonges fine sandy loam, 0 to 1 percent slopes, occasionally flooded

This very deep, poorly drained soil is in low, slightly concave landscape positions and in narrow drainageways of low terraces. Most areas are subject to occasional flooding, generally in late winter and spring. Slopes are smooth and slightly concave. Individual areas are generally long and narrow in shape. They range from 5 to about 50 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam about 7 inches thick. The subsoil, to a depth of 54 inches, is light gray sandy clay loam that has brownish mottles. The substratum, to a depth of 65 inches, is light gray sandy loam that has brownish mottles.

Important properties of the Yonges soil—

Permeability: Moderately slow
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December to April
Shrink-swell potential: Low
Flooding: Occasional

Included in mapping are a few small areas of Cahaba, Harleston, Minter, and Steens soils. The well drained Cahaba, moderately well drained Harleston, and somewhat poorly drained Steens soils are in slightly higher, more convex landscape positions than the Yonges soil. Minter soils are in slightly lower positions than the Yonges soil. They have a clayey subsoil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Most areas of this soil are used for woodland or pasture. A few areas are used for cultivated crops or hay.

This soil is poorly suited to cultivated crops, pasture, and hay. Wetness and occasional flooding are the main limitations. If cultivated crops are grown, a surface drainage system is needed. If areas are used for pasture or hay, grasses that tolerate wet soil conditions should be selected. Common bermudagrass is a suitable grass to plant.

This soil is suited to loblolly pine and hardwoods. Other species that commonly grow in areas of this soil include water oak, sweetgum, and green ash. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of panicums, red maple, waxmyrtle, green ash, water oak, and greenbrier.

This soil has severe limitations for the management of timber. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in rutting and compaction. Using low-pressure ground equipment reduces damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on beds or it can be compensated for by increasing the number of trees planted. Plant competition from undesirable plants reduces the growth of trees and can prevent adequate reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth.

This soil is poorly suited to most urban uses. It has severe limitations for building sites, local roads and streets, and most kinds of sanitary facilities. The major limitations are the flooding and the wetness. Although it is generally not feasible to control flooding, buildings can be placed on pilings or mounds to elevate them above the expected flood level.

This soil has fair potential as habitat for openland, woodland, and wetland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Yonges soil is in capability subclass IVw. The woodland ordination symbol is 10W.

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

About 185,000 acres in the survey area, or nearly 30 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, mainly in general soil map units 2, 3, 4, 5, and 11, which are described under the heading "General Soil Map Units."

The map units in the survey area that are considered prime farmland are listed at the end of this section. 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 5. 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."

The map units that meet the requirements for prime farmland are:

BaA	Bama fine sandy loam, 0 to 2 percent slopes
BaB	Bama fine sandy loam, 2 to 5 percent slopes
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded
CbA	Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded
CcB	Cahaba fine sandy loam, 2 to 5 percent slopes, rarely flooded
FnB	Faunsdale clay loam, 1 to 3 percent slopes
FnC	Faunsdale clay loam, 3 to 5 percent slopes
FsB	Freest fine sandy loam, 1 to 3 percent slopes
HaB	Halso fine sandy loam, 2 to 5 percent slopes
IzA	Izagora sandy loam, 0 to 2 percent slopes, rarely flooded
KpC	Kipling clay loam, 1 to 5 percent slopes
LaA	Lucedale fine sandy loam, 0 to 2 percent slopes
LvB	Luverne sandy loam, 2 to 5 percent slopes
OkC	Oktibbeha clay loam, 1 to 5 percent slopes
RvA	Riverview fine sandy loam, 0 to 2 percent slopes, occasionally flooded
SaA	Savannah fine sandy loam, 0 to 2 percent slopes
SdC	Smithdale loamy sand, 5 to 8 percent slopes
SrB	Subran loam, 2 to 5 percent slopes
VdA	Vaiden silty clay, 0 to 1 percent slopes
WxB	Wilcox clay, 1 to 5 percent slopes

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 survey information can evaluate the effect of 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

Kenneth M. Rogers, conservation agronomist, 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 the crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified.

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

In 1993, approximately 15,000 acres of cultivated crops and 130,000 acres of pasture were in Marengo County *(12)*. The total acreage used for cultivated crops and pasture has been decreasing slightly for several years. The trend is toward the conversion of marginal cropland to woodland, especially in the central and southern parts of the county.

The potential in Marengo County for the increased production of food and fiber is good. About 280,000 acres of land that is currently being used for pasture and woodland is potentially good cropland. The yields can be increased in cultivated areas if the most current technology is applied. This soil survey can help land users make sound land management decisions and facilitate the application of crop production technology.

The field crops that are suited to the soils and climate in Marengo County include many crops that are not commonly grown because of economic considerations. Corn, cotton, grain sorghum, and soybeans are the main row crops. Vegetable crops, fruit, and similar crops can be grown if economic conditions are favorable. Wheat, rye, and oats are the only close-growing crops planted for grain production, although barley and triticale can be grown. The specialty crops grown in the county include sweet corn, sweet potatoes, peas, okra, melons, sod, and alfalfa. Many of the soils in the survey area, including Bama, Bigbee, Bonneau, Cahaba, Harleston, Izagora, Lucedale, and Savannah soils, are well suited to specialty crops. If economic conditions are favorable, a large acreage of these crops can be grown. Pecans are the only orchard crop that are grown commercially in the county. Information regarding specialty crops can be obtained from the local offices of the Cooperative Extension System or the Natural Resources Conservation Service.

Soil erosion is a major management concern on about one-fourth of the cropland and one-half of the pasture in Marengo County *(1)*. In areas where the slope is more than two percent, erosion is a potential hazard. Bama, Cahaba, Faunsdale, Kipling, Luverne, Oktibbeha, Smithdale, Sumter, and Wilcox soils are some of the sloping soils that are presently cultivated and that are subject to erosion.

Soil erosion can reduce productivity and can result in the pollution of streams. Productivity is reduced as the surface layer of the soil erodes and more of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Brantley, Kipling, Luverne, Oktibbeha, Searcy, and Sumter soils, or on soils that are shallow over bedrock, such as Demopolis and Watsonia soils. Controlling erosion on farmland minimizes the pollution of streams and improves the quality of water for municipal uses, for recreational uses, and for fish and wildlife.

Erosion-control practices provide a protective plant cover, increase the rate of water infiltration, and help to control runoff. A cropping system that keeps plant cover and crop residue on the surface for extended periods can hold soil losses to amounts that will not reduce the productive capacity of the soils. Including grasses and legumes in the cropping system helps to control erosion in sloping areas and improves tilth for the crops that follow in the rotation. The legumes also increase the nitrogen level in the soils.

Applying a system of conservation tillage and leaving crop residue on the surface increase the rate of water infiltration and help to control runoff and erosion. Using a no-till method of planting reduces the hazard of erosion in sloping areas, and this practice is suitable on most of the soils in the county.

Terraces and diversions help to control runoff and erosion. They are most practical on very deep, well drained soils that have uniform slopes, such as Bama, Luverne, and Smithdale soils. Soils of the Blackland Prairie, such as Faunsdale, Oktibbeha, Sumter, and Vaiden soils, are generally poorly suited to terraces because of the very slow rate of water infiltration. The use of buffer strips is effective in controlling erosion in areas of these soils. Grassed waterways or underground outlets are essential in areas where terraces and diversions are installed. Diversions can be used to intercept surface runoff from hilly uplands and to divert the water around the fields to vegetated disposal areas.

Contour farming is a very effective erosion-control method in cultivated areas when it is used in conjunction with a water disposal system. It is best suited to soils that have smooth, uniform slopes, such as Bama, Kipling, Luverne, Searcy, Smithdale, Subran, and Wilcox soils.

Soil blowing can be a management concern in early spring in areas of some upland soils, especially if the soils are dry and are not protected by a plant cover. The hazard of erosion is generally highest after the seedbed has been prepared, after planting, and when the plants are small. Tillage methods that leave crop residue on the surface reduce the hazard of soil blowing. Conventional planting practices should include an implement that scratches the surface, leaving a rough, irregular pattern. Also, strips of close-growing crops are effective as windbreaks. If possible, seedbed preparation should be delayed until after March, which is a generally windy month. Additional information regarding the design of erosion-control practices is available at the local office of the Natural Resources Conservation Service.

Marengo County has an adequate amount of rainfall for the crops commonly grown. Prolonged periods of drought are rare, but the distribution of rainfall during spring and summer generally results in droughty periods during the growing season in most years. Irrigation may be needed during these periods to reduce plant stress. Most of the soils that are commonly used for cultivated crops are suitable for irrigation; however, the amount of water applied should be regulated to prevent excessive runoff. Some soils, such as Halso, Luverne, Oktibbeha, Searcy, Subran, and Vaiden soils, have a slow or very slow rate of water infiltration that limits their suitability for irrigation.

Most of the soils used for crops on terraces and uplands of the Coastal Plain in Marengo County have a surface layer of sandy loam which is light in color and has a low content of organic matter. Regular additions of crop residue, manure, and other organic material can improve the soil structure and reduce crust formation, thus improving the rate of water infiltration. Most of the soils used for crops in the Blackland Prairie area have a dark-colored, clayey surface layer that has a medium content of organic matter. Regular additions of crop residue, manure, and other organic material can improve the soil structure.

The use of heavy equipment during tillage results in soil compaction in most soils. The compacted layers, called plowpans or traffic pans, are generally 4 to 10 inches below the soil surface. They restrict the rate of water infiltration and limit the growth of plant roots. Soils that develop traffic pans readily include the Bama, Cahaba, Izagora, Luverne, Savannah, and Smithdale soils.

Soil tilth is an important factor in plant growth because it influences the rate of water infiltration into the soil. Soils that are considered to have good tilth have a granular structure with many pores in the surface layer. Tilth is most commonly affected by past tillage practices and the degree of erosion that has occurred. Soils of the Blackland Prairie, such as Faunsdale, Houlka, Oktibbeha, Sucarnoochee, and Vaiden soils, generally have poor tilth because of the high content of clay in the surface layer. They become cloddy if plowed while too wet or too dry.

Natural fertility is low in most of the soils on terraces and uplands of the Coastal Plain and is high or medium on most of the soils in the Blackland Prairie area in Marengo County. Most of the soils in the Coastal Plain and on terraces and some soils in the Blackland Prairie require applications of agricultural limestone to neutralize soil acidity. The crops grown in the county respond well to applications of lime and fertilizer. The level of available phosphorus and potash are generally low in most of the soils; however, some fields may have a buildup of phosphorus or potassium because of past applications of commercial fertilizer. Therefore, all applications of lime and fertilizer should be based on the results of a soil test. Leaching is a concern in areas of sandy soils, such as Bigbee, Bonneau, Boykin, and Wadley soils. Higher levels of nitrogen, applied in split applications, should be used on these soils. The Cooperative Extension System can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil wetness is a management concern in areas of Bibb, Consul, Houlka, Kinston, Mantachie, Minter, Steens, Sucarnoochee, Tuscumbia, Una, Urbo, and Yonges soils. A drainage system is needed to minimize the harmful effects of excess wetness. Flooding during the growing season is also a concern in areas of these soils. Planting dates may be delayed and crops are damaged in some years because of flooding.

Tall fescuegrass, bahiagrass, dallisgrass, johnsongrass, and hybrid bermudagrass are the main perennial grasses grown for pasture and hay in Marengo County. Rye, ryegrass, oats, and wheat are grown as annual cool-season grass forage. Millets, sorghums, and hybrid forage sorghums provide most of the annual warm-season grass forage. These annuals are generally grown in areas of cropland for temporary grazing or for hay. Arrowleaf clover, ball clover, crimson clover, and other cool-season forage legumes are suited to most of the soils in the county, especially if agricultural limestone is applied in proper amounts. Alfalfa, a warm-season legume, is well suited to well drained soils, such as Bama, Cahaba, and Smithdale soils of the Coastal Plain and Sumter soils of the Blackland Prairie.

Several management practices are needed on all of the soils that are used for pasture and hay production. These practices include proper stocking rates, control of weeds, proper fertilization, rotation grazing, and the scattering of animal droppings. Overgrazing, low rates of fertilization, and acid soils are the main concerns for pasture management. They can result in weak plants and poor stands that are quickly infested with weeds. Maintaining a good, dense cover that has the desired pasture species will prevent weeds from becoming established.

Yields per Acre

The average yields per acre that can be expected of the principal crops and pasture plants under a high level of management are shown in tables 6 and 7. 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 table 6.

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension System 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 rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, 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.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 and IIIe-6.

The capability classification of each map unit is given in the section “Detailed Soil Map Units” and in the yields table.

Woodland Management and Productivity

Jerry L. Johnson, forester, Natural Resources Conservation Service, helped to prepare this section.

Commercial forestland makes up 402,400 acres, or about 64 percent of the total land area in Marengo County. The forested acreage increased by about 27,800 acres from 1982 to 1990, primarily because of the conversion of cropland and pasture to forest land *(18, 19)*. Private individuals own 65 percent of the forest land in the county. The forest industry and private corporations own 35 percent of the forest land *(18)*.

The forest types in Marengo County include 158,500 acres of loblolly-shortleaf pine, 67,100 acres of oak-pine, 103,600 acres of oak-hickory, and 73,200 acres of oak-gum-cypress. The forests in Marengo County contain 176,800 acres of sawtimber, 61,000 acres of poletimber, and 164,600 acres of seedlings and saplings *(18)*.

Most of the soils in the Coastal Plain and the acid soils of the Blackland Prairie have a site index of 80 or above for loblolly pine. The alkaline soils of the Blackland Prairie, such as Demopolis, Faunsdale, Sucarnoochee, and Sumter soils, are not suited to pines. The Una soils are also unsuited to pine trees because of long periods of ponding.

Table 8 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; *D*, restricted rooting depth; *C*, clay in the upper part of the soil; *S*, sandy texture; and *F*, a high content of rock fragments in the soil. 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, D, 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 estimates of the productivity of the soils in this survey are based on data acquired in the county and on published data *(5, 6, 7, 17)*.

The *volume*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cords 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

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation 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 table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these 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 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

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

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

Tommy Counts, wildlife biologist, Natural Resources Conservation Service, helped to prepare this section.

Marengo County is dominantly a rural area that has suitable habitat for many kinds of wildlife. The county is about 64 percent forest land, but it is interspersed with areas of cultivated crops, pasture, and hay.

The common species of wild game found in Marengo County are the eastern wild turkey, bobwhite quail, whitetailed deer, eastern cottontail rabbit, mourning dove, Canada geese, and ducks.

The nongame wildlife species in the county include armadillos, snakes, egrets, herons, crows, blackbirds, hawks, owls, and songbirds such as cardinals, robins, thrushes, bluejays, meadowlarks, mockingbirds, sparrows, woodpeckers, vireos, and warblers.

The forest stands generally consist of loblolly pine or mixed pine-hardwoods in the upland areas and bottom land hardwoods on the flood plains of streams and rivers. The forest types and their associated plant communities are of major importance to wildlife. Many of these forest areas are managed primarily to provide habitat for various species of wildlife, such as the bobwhite quail, whitetailed deer, and turkey. Management practices that benefit wildlife, such as prescribed burning, forest openings, and stand thinnings are commonly applied throughout the county.

Areas of cultivated crops, hay, and pasture are often interspersed with the forest land. The open areas are very important to many species of wildlife. The areas of cropland are primarily used for agricultural commodities, such as soybeans, corn, and grain sorghum. The pasture and hayland areas are generally used for perennial grasses, such as bahiagrass, bermudagrass, tall fescuegrass, or johnsongrass.

Wetlands are used by many kinds of wildlife, but many of the furbearers and wading birds depend upon these areas almost exclusively. Natural depressions and areas of saturated soils along creeks and rivers, bodies of open water, and beaver ponds make up most of the wetland areas in the county. They occur mostly along the Chickasaw Bogue, Powell, Beaver, Horse, Dry, Watkins, and Double Creeks and in areas that are adjacent to the Tombigbee River.

Some of the furbearers in the county include beaver, muskrat, river otter, mink, bobcat, foxes, opossum, coyote, raccoon, and skunks. Waterfowl and wading birds are numerous during certain times of the year in wetland areas, especially in those areas along the Tombigbee River.

The wildlife species in Marengo County that the Federal government has listed as threatened or endangered include the bald eagle and the American alligator.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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

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

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

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 tall fescue, bahiagrass, johnsongrass, clover, lespedeza, chufa, and bermudagrass.

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 dewberry, blackberry, goldenrod, crotons, beggarweed, pokeweed, paspalums, ragweed, and partridge pea.

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, black cherry, sweetgum, apple, hawthorn, dogwood, persimmon, sassafras, sumac, holly, hickory, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are pyracantha, autumn-olive, and crabapple.

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

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

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, meadowlark, field sparrow, cottontail rabbits, red fox, coyote, armadillo, dove, killdeer, 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, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, bear, bobcat, opossum, and skunk.

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, otter, beaver, turtle, rails, and kingfishers.

Aquaculture

H. D. Kelly, biologist, Natural Resources Conservation Service, helped to prepare this section.

Aquaculture is the controlled production and harvest of animals or plants grown in or on water. In Marengo County, catfish farming (channel catfish), and sport fish production (bass and bream) are the most common types of aquaculture. The channel catfish, *Ictulurus punctatus*, is produced either in cages within ponds or in open ponds. Open-pond culture is the only method currently in use in Marengo County (fig. 9). The county currently has about 1,100 acres of catfish ponds and about 2,300 acres of bass and bream ponds. Other species of fish are being considered for pond production, and the growth of fish farming should provide an excellent source of additional income for some landowners.

Some of the tables included with this survey can help in evaluating potential pond sites. In table 14, for example, the soil limitations affecting pond reservoir areas and embankments, dikes, and levees are given. Indications of flooding frequency and water table levels are in table 17. These tables and the detailed soil maps can help in evaluating a selected location for its pond-building and water-retaining potential. Once the pond site is selected, however, additional soil borings should be made.

An understanding of soil characteristics is important in determining the potential of a pond site. The Faunsdale, Kipling, Oktibbeha, Sucarnoochee, Sumter, and Vaiden soils of the Blackland Prairie and the Consul, Halso, Luverne, Searcy, and Wilcox soils of the Coastal Plain are generally suited to pond construction.

The construction of buildings and the accessibility of the area are important considerations in evaluating a pond site. Depending upon the size and planned use of the site, road systems must be planned to accommodate harvest trucks. Large trucks are used in commercial operations. Feed trucks or similar equipment also require suitable access to the fish farm. If the farm is planned for fingerling production, a hatchery building will probably be on the site. Other buildings may be needed to store equipment or feed. Table 11 gives soil limitations affecting roads and building sites.

The quality of water in a pond is influenced by the soil. Several variables of water quality affect the production of fish. Total alkalinity, for example, is directly influenced by the soil. Total alkalinity values ranging from 30 to 150 parts per million are preferred. Fish production can be acceptable in ponds that have a low alkalinity level—less than 20 parts per million—provided that the fish are well fed. Other complicating factors, however, affect fish production when alkalinity values are below 20 parts per million. The application of agricultural lime can often prevent production problems associated with low alkalinity values.

The soil in pond basins should be analyzed before the basins are limed and filled with water. The amount of lime needed should be based on the results of the analysis, and the lime should be applied before the ponds are filled with water. Thereafter, annual

Figure 9.—A newly constructed farm pond in an area of Luverne sandy loam, 5 to 15 percent slopes, eroded. Luverne soils are well suited as sites for ponds and lakes.

applications of lime, even in ponds full of water, should range from 20 to 25 percent of the original application to maintain desirable levels of alkalinity. The importance of proper alkalinity levels cannot be overemphasized. Some soils suitable for pond sites in Marengo County require applications of lime; however, ponds constructed on soils within the watershed of the Blackland Prairie generally will not require additional lime.

The source and amounts of water to be used should also be considered when evaluating a site for a pond or fish farm. For example, if runoff water is to be used, the watershed must also be evaluated. Technical assistance in solving site and production problems is available from the local office of the Natural Resources Conservation Service or the Cooperative Extension System.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

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

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

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

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

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

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

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

Building Site Development

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

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, 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, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, 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 12 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 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.

Table 12 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 or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

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

Construction Materials

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

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

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

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

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

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

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

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

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

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

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

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

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

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

Water Management

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

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

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

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

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

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

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, 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 affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A 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 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

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

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

Classification of the soils is determined according to the Unified soil classification system *(4)* and the system adopted by the American Association of State Highway and Transportation Officials *(3)*.

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 16 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 table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained 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 17 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.

Table 17 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 table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched, apparent, or artesian; 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 table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. “More than 6.0” indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

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

The results of physical analysis of several typical pedons in the survey area are given in table 18 and the results of chemical analysis in table 19. 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 Agronomy and Soils Mineralogy Laboratory, Auburn University, and the National Soil Survey Laboratory, Natural Resources Conservation Service, Lincoln, Nebraska.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(10, 20)*.

Sand—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1).

Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1).

Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

Carbonate clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

Extractable bases—method of Hajek, Adams, and Cope *(10)*.

Extractable acidity—method of Hajek, Adams, and Cope *(10)*.

Cation-exchange capacity—sum of cations (5A3a).

Base saturation—method of Hajek, Adams, and Cope *(10)*.

Reaction (pH)—1:1 water dilution (8C1a).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(16, 22)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 20 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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 Ultisols 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, clay activity, 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, subactive, 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 Smithdale series, which is a fine-loamy, siliceous, subactive, 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” *(21)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(16)* and in “Keys to Soil Taxonomy” *(22)*. 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.”

Bama Series

The Bama series consists of very deep, well drained soils on broad ridgetops and on side slopes of high terraces. These soils formed in loamy sediments. Slopes range from 0 to 5 percent.

Soils of the Bama series are fine-loamy, siliceous, subactive, thermic Typic Paleudults.

Bama soils are commonly associated on the landscape with Lucedale, Luverne, Savannah, and Smithdale soils. Lucedale soils are in landscape positions similar to those of the Bama soils. They have a dark red argillic horizon. Luverne and Smithdale soils are in lower positions on the landscape. Luverne soils have a clayey argillic horizon. Smithdale soils have an argillic horizon that decreases in clay content by 20 percent or more within a depth of 60 inches. Savannah soils are in landscape positions similar to those of the Bama soils but are at lower elevations. They have a fragipan and are brownish in color.

Typical pedon of Bama fine sandy loam, 0 to 2 percent slopes, about 1 mile south of the Magnolia Terminal, 1,500 feet west and 900 feet south of the northeast corner of sec. 15, T. 13 N., R. 4 E.

Ap—0 to 5 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; common fine pores; slightly acid; abrupt smooth boundary.

BE—5 to 11 inches; yellowish red (5YR 5/8) fine sandy loam; weak fine subangular blocky structure; very friable; common fine roots; strongly acid; clear smooth boundary.

Bt1—11 to 41 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—41 to 65 inches; red (2.5YR 4/6) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface and subsurface layers in areas where lime has been added.

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

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It is fine sandy loam or sandy loam.

The BE horizon, if it occurs, has hue of 7.5YR or 5YR, value of 5 or 6, and chroma of 4 to 8. It is loam, fine sandy loam, or sandy loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. Texture is sandy clay loam or fine sandy loam.

Bibb Series

The Bibb series consists of very deep, poorly drained soils in low positions on flood plains. These soils formed in stratified loamy and sandy alluvium. Bibb soils are subject to frequent flooding for brief periods several times each year. Slopes range from 0 to 1 percent.

Soils of the Bibb series are coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents.

Bibb soils are commonly associated on the landscape with Cahaba, Iuka, Mantachie, and Mooreville soils. Cahaba soils are on adjacent stream terraces. The moderately well drained Iuka soils, the somewhat poorly drained Mantachie soils, and the moderately well drained Mooreville soils are in slightly higher, more convex positions on the stream flood plain.

Typical pedon of Bibb fine sandy loam, in an area of Bibb-Iuka complex, 0 to 1 percent slopes, frequently flooded; about 0.25 mile east of Vineland, 400 feet west and 1,000 feet south of the northeast corner of sec. 10, T. 12 N., R. 4 E.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; strongly acid; clear wavy boundary.

A2—3 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in pores and root channels; strongly acid; clear wavy boundary.

Cg1—8 to 13 inches; dark gray (10YR 4/1) sandy loam; massive; very friable; common fine and medium roots; few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; strongly acid; clear wavy boundary.

Cg2—13 to 35 inches; light gray (10YR 7/1) sandy loam; massive; very friable; common fine and few medium roots; few thin strata of loamy sand; few medium distinct brownish yellow (10YR 6/8) masses of iron accumulation; strongly acid; clear wavy boundary.

Cg3—35 to 50 inches; gray (10YR 5/1) loam; massive; very friable; few fine roots; few thin strata of loamy sand; few medium and coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Cg4—50 to 58 inches; dark gray (5Y 4/1) loam; massive; very friable; few medium distinct brownish yellow (10YR 6/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Cg5—58 to 68 inches; gray (5Y 6/1) sandy loam; massive; very friable; common medium distinct brownish yellow (10YR 6/6) masses of iron accumulation; few medium soft black masses (iron and manganese oxides); strongly acid.

Reaction ranges from extremely acid to strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It has few to many redox accumulations in shades of red, yellow, or brown. The texture is commonly sandy loam, fine sandy loam, silt loam, or loam. Some pedons have textures of sand, loamy sand, or loamy fine sand in the lower part.

Bigbee Series

The Bigbee series consists of very deep, excessively drained soils on low stream terraces and on natural levees. These soils formed in sandy sediments. Bigbee soils are subject to rare or occasional flooding for brief periods. Slopes range from 0 to 5 percent.

Soils of the Bigbee series are thermic, coated Typic Quartzipsamments.

Bigbee soils are commonly associated on the landscape with Cahaba, Chrysler, Harleston, Riverview, and Urbo soils. Cahaba and Harleston soils are in positions similar to those of the Bigbee soils. They have a loamy argillic horizon. Chrysler soils are on terraces at slightly lower elevations than the Bigbee soils and have a clayey argillic horizon. Riverview soils are in slightly lower positions on natural levees and are fine-loamy. Urbo soils are in lower positions on the flood plain and have a clayey cambic horizon.

Typical pedon of Bigbee loamy sand, 0 to 5 percent slopes, occasionally flooded; about 2 miles south of Coatopa, 900 feet east and 200 feet north of the southwest corner of sec. 32, T. 17 N., R. 1 E.

Ap—0 to 9 inches; brown (10YR 5/3) loamy sand; single grained; loose; few fine and medium roots; very strongly acid; abrupt smooth boundary.

C1—9 to 47 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; few fine roots; very strongly acid; abrupt wavy boundary.

C2—47 to 62 inches; yellow (10YR 7/6) sand; single grained; loose; very strongly acid; gradual wavy boundary.

C3—62 to 80 inches; yellow (10YR 7/6) sand; single grained; loose; common fine faint very pale brown (10YR 7/3) iron depletions; very strongly acid.

The thickness of sandy sediments is more than 80 inches. Reaction is very strongly acid to moderately acid throughout the profile, except in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The upper part of the C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 6. Texture is loamy sand, fine sand, or sand.

The lower part of the C horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 6. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of brown. Texture is sand, fine sand, or loamy sand.

Bonneau Series

The Bonneau series consists of very deep, well drained soils on stream terraces. These soils formed in sandy and loamy sediments. Slopes range from 0 to 5 percent.

Soils of the Bonneau series are loamy, siliceous, semiactive, thermic Arenic Paleudults.

Bonneau soils are commonly associated on the landscape with Izagora, Savannah, and Yonges soils. Izagora and Savannah soils are in landscape positions similar to those of the Bonneau soils. They do not have a thick, sandy epipedon. The poorly drained Yonges soils are in lower positions than the Bonneau soils.

Typical pedon of Bonneau loamy fine sand, 0 to 5 percent slopes, about 2 miles northeast of Providence, about 2,200 feet west and 1,000 feet south of the northeast corner of sec. 7, T. 16 N., R. 4 E.

Ap—0 to 7 inches; brown (10YR 5/3) loamy fine sand; weak fine granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.

E—7 to 21 inches; pale brown (10YR 6/3) loamy sand; single grained; loose; few fine roots; very strongly acid; abrupt wavy boundary.

Bt1—21 to 36 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear smooth boundary.

Bt2—36 to 51 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; friable; few medium roots; few faint clay films on faces of peds; few medium distinct light gray (10YR 7/2) iron depletions and few coarse prominent red (2.5YR 4/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

Bt3—51 to 65 inches; 35 percent brownish yellow (10YR 6/6), 35 percent light gray (10YR 7/2), and 30 percent red (2.5YR 4/8) sandy clay loam;

moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; the areas of light gray are iron depletions and the areas of red are masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction ranges from very strongly acid to moderately acid in the A and E horizons and from very strongly acid to strongly acid in the Bt horizon.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 6. Texture is loamy sand or loamy fine sand.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It has few to many redox accumulations in shades of red or brown and redox depletions in shades of gray. The texture is sandy loam or sandy clay loam.

The lower part of the Bt horizon has the same range in colors as the upper part, or it has no dominant matrix color and is multicolored in shades of red, gray, and brown. The texture is sandy loam, sandy clay loam, or sandy clay.

Boykin Series

The Boykin series consists of very deep, well drained soils on narrow ridgetops and side slopes in the uplands. These soils formed in sandy and loamy sediments. Slopes range from 0 to 45 percent.

Soils of the Boykin series are loamy, siliceous, active, thermic Arenic Paleudults.

Boykin soils are commonly associated on the landscape with Luverne, Smithdale, and Wadley soils. Luverne, Smithdale, and Wadley soils are in landscape positions similar to those of the Boykin soils. Luverne soils have a clayey argillic horizon and do not have a thick sandy epipedon. Smithdale soils do not have a thick sandy epipedon. Wadley soils have a sandy epipedon more than 40 inches thick.

Typical pedon of Boykin loamy fine sand, 0 to 5 percent slopes, about 0.5 miles west of Bethel Cemetery in the Clayhill community, 100 feet south and 2,600 feet east of the northwest corner of sec. 22, T. 12 N., R. 3 E.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) loamy fine sand: weak fine granular structure; very friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.

E1—5 to 19 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; common fine and medium roots; very strongly acid; clear smooth boundary.

E2—19 to 28 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; few fine roots; very strongly acid; clear smooth boundary.

Bt1—28 to 44 inches; yellowish red (5YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—44 to 58 inches; reddish yellow (5YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—58 to 80 inches; red (2.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common distinct clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface and subsurface layers in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4. Texture is loamy fine sand or loamy sand.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 to 8. Texture is sandy loam or sandy clay loam.

Brantley Series

The Brantley series consists of very deep, well drained soils on narrow ridgetops and on side slopes of uplands. These soils formed in clayey and loamy sediments. Slopes range from 5 to 35 percent.

Soils of the Brantley series are fine, mixed, active, thermic Ultic Hapludalfs.

Brantley soils are commonly associated with Kipling, Okeelala, Oktibbeha, and Searcy soils. Kipling and Searcy soils are in lower, less sloping positions than Brantley soils. Kipling soils are somewhat poorly drained. Searcy soils are moderately well drained and have a solum thickness of 60 inches or more. Okeelala and Oktibbeha soils are in landscape positions similar to those of the Brantley soils. Okeelala soils are fine-loamy. Oktibbeha soils have a very fine textured argillic horizon.

Typical pedon of Brantley fine sandy loam, 5 to 8 percent slopes; about 1.25 miles north of Consul, 200 feet west and 1,200 feet north of the southeast corner of sec. 11, T. 15 N., R. 5 E.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; common fine pores; moderately acid; clear smooth boundary.

BA—5 to 10 inches; strong brown (7.5YR 5/6) fine sandy loam; weak fine subangular blocky structure; very friable; few fine roots; moderately acid; abrupt smooth boundary.

Bt1—10 to 20 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—20 to 41 inches; strong brown (7.5YR 5/8) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; few fine flakes of mica; common medium distinct brownish yellow (10YR 6/8) and few medium prominent yellowish red (5YR 5/6) masses of iron accumulation; moderately acid; clear smooth boundary.

Bt3—41 to 55 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; common fine flakes of mica; strongly acid; clear smooth boundary.

C—55 to 69 inches; strong brown (7.5YR 5/6) fine sandy loam; massive; very friable; common fine flakes of mica; common fine and medium distinct light brownish gray (2.5Y 6/2) iron depletions; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction is very strongly acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

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

The BA horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. Texture is fine sandy loam or loam.

The Bt horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 8. Texture is clay, sandy clay, or clay loam in the upper part and clay loam or sandy clay loam in the lower part.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Some pedons have few to common redox accumulations in shades of brown and red and few to common redox depletions in shades of gray. Texture is sandy clay loam, fine sandy loam, sandy loam, loamy sand, or loamy fine sand.

Cahaba Series

The Cahaba series consists of very deep, well drained soils on low terraces that are adjacent to the major streams. These soils formed in loamy alluvium. Cahaba soils are subject to rare or occasional flooding. Slopes range from 0 to 5 percent.

Soils of the Cahaba series are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Cahaba soils are commonly associated on the landscape with Bigbee, Chrysler, Harleston, Izagora, and Urbo soils. Bigbee soils are in landscape positions similar to those of the Cahaba soils. They are sandy throughout the profile. Chrysler, Harleston, and Izagora soils are in slightly lower, less convex landscape positions. Chrysler soils have a clayey argillic horizon. Harleston soils have a coarse-loamy argillic horizon and brownish colors. Izagora soils have a brownish subsoil. Urbo soils are on adjacent flood plains and have a clayey cambic horizon.

Typical pedon of Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded, about 3.5 miles west of Jefferson, 500 feet east and 700 feet north of the southwest corner of sec. 36, T. 17 N., R. 1 E.

Ap—0 to 6 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

Bt1—6 to 22 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; many fine and medium roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—22 to 47 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

C1—47 to 75 inches; yellowish red (5YR 5/8) fine sandy loam; massive; friable; few fine flakes of mica; common fine distinct yellow (10YR 7/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

C2—75 to 90 inches; red (2.5YR 4/8) loamy sand; single grained; loose; few fine flakes of mica; few fine distinct yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum ranges from 36 to 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

The Ap or A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is sandy loam, fine sandy loam, or loamy fine sand.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. Texture is loam, sandy clay loam, or clay loam.

The C horizon has hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 4 to 8. Texture is fine sandy loam, sandy loam, or loamy sand. It has common strata of coarser or finer textured material.

Chrysler Series

The Chrysler series consists of very deep, moderately well drained soils on low terraces adjacent to the Tombigbee River and other large streams. These soils formed in clayey sediments. Chrysler soils are subject to occasional flooding. Slopes range from 0 to 2 percent.

Soils of the Chrysler series are fine, mixed, semiactive, thermic Aquic Paleudults.

Chrysler soils are commonly associated on the landscape with Bigbee, Cahaba, Lenoir, Minter, and Urbo soils. Bigbee and Cahaba soils are in slightly higher, more convex positions than the Chrysler soils. Bigbee soils are sandy throughout the profile. Cahaba soils are fine-loamy. The somewhat poorly drained Lenoir soils and the poorly drained Minter soils are in slightly lower, less convex positions than the Chrysler soils. The somewhat poorly drained Urbo soils are on adjacent flood plains.

Typical pedon of Chrysler silt loam, in an area of Chrysler-Lenoir complex, gently undulating, occasionally flooded; about 1.25 miles east of Moscow, 1,600 feet west and 2,400 feet north of the southeast corner of sec. 20, T. 17 N., R. 1 E.

Ap—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

E—3 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; many fine and medium roots; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt1—6 to 18 inches; yellowish red (5YR 5/6) silty clay loam; strong medium subangular blocky structure; firm; common fine and medium roots; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—18 to 24 inches; yellowish red (5YR 5/6) silty clay; strong medium subangular blocky structure; very firm; few medium roots; common faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and common fine distinct yellowish red (2.5YR 4/8) masses of iron accumulation; few fine distinct light brownish gray (2.5Y 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bt3—24 to 42 inches; brownish yellow (10YR 6/6) clay; strong medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; common medium distinct light gray (10YR 7/1) iron depletions; common medium prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt4—42 to 65 inches; 40 percent light gray (10YR 7/1), 30 percent yellowish brown (10YR 5/6), and 30 percent red (2.5YR 4/8) clay; moderate coarse subangular blocky structure; firm; common faint clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

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

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is silt loam or loam.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of red, yellow, gray, and brown. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of red, brown, and yellow. Texture is clay, clay loam, silty clay loam, or silty clay.

The lower part of the Bt horizon has colors similar to those of the upper part and includes hue of 10YR, value of 4 to 7, and chroma of 1 to 8. It has few to many redox depletions and accumulations. Texture is clay loam, silty clay, or clay.

Consul Series

The Consul series consists of deep, poorly drained soils on broad ridgetops of the uplands. These soils formed in clayey sediments and the underlying alkaline shale. Slope ranges from 0 to 2 percent.

Soils of the Consul series are very-fine, smectitic, thermic Chromic Dystraquerts.

Consul soils are commonly associated on the landscape with Wilcox soils. Wilcox soils are on adjacent side slopes and have reddish colors in the upper part of the subsoil.

Typical pedon of Consul clay, 0 to 2 percent slopes, about 1.5 miles west of Thomaston, 2,700 feet west and 2,100 feet north of the southeast corner of sec. 27, T. 15 N., R. 4 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) clay; weak fine granular and moderate medium subangular blocky structure; firm; common fine and medium roots; neutral; abrupt wavy boundary.

Bssg1—6 to 20 inches; light brownish gray (2.5Y 6/2) clay; weak coarse prisms parting to moderate fine and medium angular blocky structure; very firm; common fine roots on surfaces of peds; common intersecting slickensides that have faint, slightly grooved surfaces; common fine brown and black concretions (iron and manganese oxides); common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds and within the matrix; extremely acid; gradual wavy boundary.

Bssg2—20 to 40 inches; light brownish gray (2.5Y 6/2) clay; large wedge-shaped aggregates parting to strong medium and coarse angular blocky structure; very firm; few fine roots on surfaces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; many fine brown and black concretions (iron and manganese oxides); common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds and within the matrix; many medium faint light gray (5Y 7/1) iron depletions on faces of peds; strongly acid; gradual wavy boundary.

Bssg3—40 to 52 inches; grayish brown (2.5Y 5/2) clay; large wedge-shaped aggregates parting to strong medium and coarse angular blocky structure; very firm; few fine roots on surfaces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine fragments of soft shale; many fine brown and black concretions (iron and manganese oxides); many black stains (manganese oxides) on faces of peds in a 2-inch layer above the lower boundary; many fine distinct light olive brown (2.5Y 4/4) masses of iron accumulation on faces of peds and within the matrix; many fine faint light gray (5Y 7/1) iron depletions on faces of peds; neutral; abrupt wavy boundary.

Cr—52 to 80 inches; shale that is light olive brown (2.5Y 5/4) in the interior and grayish brown (2.5Y 5/2) on the exterior; weak medium platy and conchoidal rock structure; common soft masses of calcium carbonate; many fine black concretions (iron and manganese oxides); common medium distinct yellow (2.5Y 7/6) masses of iron accumulation on structural faces; slightly alkaline.

The thickness of the solum and the depth to shale bedrock ranges from 40 to 60 inches.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. Reaction ranges from extremely acid to strongly acid, except in areas where lime has been added.

The Bssg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redox depletions in shades of gray and redox accumulations in shades of brown and red. It has few to many black or brown concretions of iron and manganese oxides. Reaction is extremely acid or very strongly acid in the upper part and ranges from very strongly acid to neutral in the lower part.

The Cr horizon is weathered shale. It has platy and conchoidal rock structure. Some pedons have few or common soft masses of calcium carbonate. Reaction ranges from neutral to moderately alkaline. It can be dug with difficulty with hand tools and is rippable by light machinery.

Demopolis Series

The Demopolis series consists of shallow, well drained soils on ridgetops and side slopes of uplands in the Blackland Prairie. These soils formed in material weathered from soft limestone (chalk). Slopes range from 1 to 12 percent.

Soils of the Demopolis series are loamy, carbonatic, thermic, shallow Typic Udorthents.

Demopolis soils are commonly associated on the landscape with Sumter and Watsonia soils. Sumter and Watsonia soils are in slightly higher landscape positions. Sumter soils are moderately deep over bedrock. Watsonia soils are clayey and are acid in the upper part of the solum.

Typical pedon of Demopolis silty clay loam, 3 to 8 percent slopes, eroded, about 2.1 miles south of Demopolis, 1,000 feet north and 1,000 feet east of the southwest corner of sec. 4, T. 17 N., R. 3 E.

Ap—0 to 6 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium granular structure; friable; few medium and many fine roots; common fine and medium nodules of calcium carbonate; about 5 percent fragments of soft limestone (chalk); strongly effervescent; moderately alkaline; clear smooth boundary.

C—6 to 13 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak coarse subangular blocky structure; friable; common fine roots; many fragments of soft limestone (chalk); common fine and medium nodules and soft masses of calcium carbonate; violently effervescent; moderately alkaline; abrupt wavy boundary.

Cr—13 to 65 inches; light gray (5Y 7/2) and gray (5Y 6/1) soft limestone (chalk); moderate medium and thick platy rock structure; level-bedded; very firm; violently effervescent; moderately alkaline.

The depth to soft limestone (chalk) bedrock is 10 to 20 inches. Reaction is slightly alkaline or moderately alkaline throughout the profile. Soft limestone (chalk) fragments are pararock fragments.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. The content of soft limestone fragments ranges from 5 to 15 percent. This horizon has few to many concretions and soft masses of calcium carbonate.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. Texture is loam, silt loam, clay loam, or silty clay loam. This horizon has common or many concretions or soft masses of calcium carbonate. Some pedons have 5 to 35 percent channers of soft limestone.

The Cr horizon is level-bedded, soft limestone (chalk) that has platy rock structure. It can be excavated with difficulty with hand tools and is rippable by light machinery. Thin, discontinuous strata of hard limestone are in some areas.

Faunsdale Series

The Faunsdale series consists of very deep, somewhat poorly drained soils on concave side slopes and toe slopes of the Blackland Prairie. These soils formed in alkaline clay and the underlying soft limestone (chalk). Slopes range from 1 to 5 percent.

Soils of the Faunsdale series are fine, smectitic, thermic Aquic Hapluderts.

Faunsdale soils are commonly associated on the landscape with Demopolis, Sucarnoochee, Sumter, and Vaiden soils. Demopolis and Sumter soils are in slightly higher positions than the Faunsdale soils. Demopolis soils are shallow over bedrock. Sumter soils are moderately deep over bedrock. Sucarnoochee soils are on adjacent flood plains and are subject to frequent flooding. Vaiden soils are in lower positions than the Faunsdale soils and are acid in the upper part of the subsoil.

Typical pedon of Faunsdale clay loam, 1 to 3 percent slopes, about 4 miles south of Faunsdale, 1,350 feet south and 200 feet east of the northwest corner of sec. 33, T. 17 N., R. 5 E.

Ap—0 to 5 inches; very dark grayish brown (2.5Y 3/2) clay loam; moderate fine granular and moderate medium subangular blocky structure; firm; common fine and medium roots; neutral; abrupt smooth boundary.

A—5 to 13 inches; dark grayish brown (2.5Y 4/2) silty clay; moderate medium angular and subangular blocky structure; firm; common fine and medium roots; few fine black nodules (iron and manganese oxides); few fine distinct strong brown (7.5YR 5/8) masses of iron accumulation; neutral; clear wavy boundary.

Bss—13 to 30 inches; light olive brown (2.5Y 5/4) clay loam; coarse wedge-shaped fragments of soil parting to moderate medium angular blocky structure; firm; few fine roots along faces of slickensides; common large intersecting slickensides that have distinct, polished and grooved surfaces; common fine and few medium soft black masses (iron and manganese oxides); few fine black nodules (iron and manganese oxides); common fine and medium faint grayish brown (2.5Y 5/2) iron depletions on faces of peds and in pores; slightly effervescent; slightly alkaline; clear wavy boundary.

Bkss1—30 to 51 inches; light olive brown (2.5Y 5/4) silty clay; coarse wedge-shaped fragments of soil parting to moderate medium angular blocky structure; firm; few fine roots on faces of slickensides; common large intersecting slickensides that have distinct, polished and grooved surfaces; many fine and few medium soft black masses (iron and manganese oxides); common fine distinct olive yellow (2.5Y 6/6) masses of iron accumulation; common fine faint gray (2.5Y 5/2) iron depletions on faces of peds and within peds; many soft masses and common nodules of calcium carbonate; slightly effervescent; slightly alkaline; clear wavy boundary.

Bkss2—51 to 68 inches; light olive brown (2.5Y 5/4) clay; coarse wedge-shaped fragments of soil parting to strong medium angular blocky structure; firm; common large intersecting slickensides that have distinct, polished and grooved surfaces; few fine and medium soft black masses (iron and manganese oxides); common coarse distinct brownish yellow (10YR 6/8) masses of iron accumulation; few fine distinct light brownish gray (10YR 6/2) iron depletions; many soft masses and common nodules of calcium carbonate; strongly effervescent; slightly alkaline; gradual wavy boundary.

C—68 to 90 inches; light brownish gray (2.5Y 6/2) clay;

massive; firm; common fine distinct olive yellow (2.5Y 6/8) masses of iron accumulation; few soft masses of calcium carbonate; violently effervescent; moderately alkaline; clear wavy boundary.

Cr—90 to 95 inches; light yellowish brown (2.5Y 6/3) soft limestone (chalk); moderate thick platy rock structure; very firm; violently effervescent; moderately alkaline.

The thickness of the solum is more than 40 inches, and the depth to bedrock is more than 60 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. Reaction is neutral or slightly alkaline.

The B horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 4 to 6. It has few to many redox accumulations in shades of brown and olive and redox depletions in shades of gray. It has few to many soft masses or nodules and concretions of iron and manganese oxides. Some pedons have few to many soft masses or nodules and concretions of calcium carbonate, which generally increase with increasing depth. Texture is clay loam, silty clay loam, silty clay, or clay. Reaction ranges from neutral to moderately alkaline.

The C horizon has a hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 1 to 3. It has few to many redox accumulations in shades of brown and olive. Texture is clay, silty clay, or silty clay loam.

The Cr horizon, if it occurs, is soft limestone (chalk). It is massive or has platy rock structure. It can be dug with difficulty with hand tools and is rippable by light machinery.

Freest Series

The Freest series consists of very deep, moderately well drained soils on stream terraces in the Blackland Prairie. These soils formed in loamy sediments. Slopes range from 1 to 3 percent.

Soils of the Freest series are fine-loamy, siliceous, active, thermic Aquic Paleudalfs.

Freest soils are commonly associated on the landscape with Kipling, Searcy, Sucarnoochee, and Vaiden soils. Kipling, Searcy, and Vaiden soils are in higher positions on the landscape than the Freest soils. They have a clayey argillic horizon. Sucarnoochee soils are on adjacent flood plains and are clayey throughout.

Typical pedon of Freest fine sandy loam, 1 to 3 percent slopes, about 2 miles northeast of Linden, 2,200 feet east and 1,000 feet north of the southwest corner of sec. 25, T. 16 N., R. 2 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; few fine roots; strongly acid; abrupt smooth boundary.

E—4 to 8 inches; light yellowish brown (10YR 6/4) loam; weak fine granular structure; very friable; few fine roots; strongly acid; clear smooth boundary.

Bt1—8 to 24 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; few fine distinct gray (10YR 7/2) iron depletions; strongly acid; clear smooth boundary.

Bt2—24 to 48 inches; 40 percent brownish yellow (10YR 6/8), 30 percent gray (10YR 7/2), and 30 percent reddish brown (5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; the areas of gray are iron depletions and the areas of reddish brown are masses of iron accumulation; very strongly acid; clear smooth boundary.

Bt3—48 to 65 inches; 40 percent brownish yellow (10YR 6/8), 30 percent gray (10YR 7/2), and 30 percent red (2.5YR 3/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; the areas of gray are iron depletions and the areas of red are masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. Texture is sandy loam, fine sandy loam, or loam.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 6. It has few or common redox accumulations in shades of brown and red and redox depletions in shades of gray. Texture is loam, sandy clay loam, or clay loam.

The lower part has a similar range in colors as the upper part, or it has no dominant matrix color and is multicolored in shades of brown, gray, and red. Texture is clay loam or clay.

Halso Series

The Halso series consists of deep, moderately well drained soils on ridgetops and side slopes of the uplands. These soils formed in clayey sediments and the underlying shale. Slopes range from 2 to 15 percent.

Soils of the Halso series are fine, smectitic, thermic Vertic Hapludults.

Halso soils are commonly associated on the landscape with Houlka and Luverne soils. Houlka soils are on adjacent flood plains and are subject to frequent flooding. Luverne soils are in landscape positions similar to those of the Halso soils but are at higher elevations. They have mixed clay mineralogy and do not have vertic properties.

Typical pedon of Halso fine sandy loam, 2 to 5 percent slopes, about 2 miles south of Vineland, 600 feet south and 800 feet east of the northwest corner of sec. 23, T. 12 N., R. 4 E.

Ap—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt1—7 to 16 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; common faint clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—16 to 21 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few medium roots; common faint clay films on faces of peds; common medium prominent light yellowish brown (2.5Y 6/4) masses of iron accumulation; strongly acid; clear wavy boundary.

Bt3—21 to 29 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; common distinct light yellowish brown (2.5Y 6/4) clay films on faces of peds; common fine prominent light gray (2.5Y 7/2) iron depletions; very strongly acid; clear wavy boundary.

Bt4—29 to 44 inches; 40 percent red (2.5YR 4/8), 30 percent light gray (2.5Y 7/2), and 30 percent strong brown (7.5YR 5/8) clay; moderate medium angular blocky structure; firm; common distinct brownish yellow (10YR 6/6) clay films on faces of peds; the areas of light gray are iron depletions and the areas of strong brown are masses of iron accumulation; very strongly acid; abrupt irregular boundary.

Cr—44 to 65 inches; olive gray (5Y 5/2) clayey shale; moderate medium platy rock structure; very firm; extremely acid.

The thickness of the solum ranges from 25 to 50 inches, and the depth to soft shale bedrock ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The BA horizon, if it occurs, has hue of 5YR, value of 3 or 4, and chroma of 4 to 6. Texture is clay loam, silty clay loam, silty clay, or clay.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4 to 8. Texture is clay loam, clay, or silty clay.

The lower part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of gray, red, brown, and yellow. It has common to many redox depletions in shades of gray and redox accumulations in shades of red, yellow, and brown. Texture is clay or silty clay.

The Cr horizon is clayey shale that can be cut with hand tools and is rippable by light machinery.

Harleston Series

The Harleston series consists of very deep, moderately well drained soils on low stream terraces. These soils formed in loamy sediments. Harleston soils are rarely flooded, but they may be flooded during periods of unusually heavy and prolonged rainfall. Slopes range from 0 to 2 percent.

Soils of the Harleston series are coarse-loamy, siliceous, semiactive, thermic Aquic Paleudults.

Harleston soils are commonly associated on the landscape with Bigbee, Cahaba, Steens, and Yonges soils. Bigbee and Cahaba soils are in landscape positions similar to those of the Harleston soils. Bigbee soils are sandy throughout the profile. Cahaba soils are fine-loamy and have a reddish subsoil. The somewhat poorly drained Steens soils and the poorly drained Yonges soils are in slightly lower, less convex landscape positions than the Harleston soils.

Typical pedon of Harleston fine sandy loam, in an area of Steens-Yonges-Harleston complex, 0 to 2 percent slopes, about 1 mile north of Putnam, 200 feet north and 1,600 feet east of the southwest corner of sec. 32, T. 13 N., R. 1 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; few fine and medium roots; moderately acid; abrupt smooth boundary.

E—5 to 13 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; weak coarse subangular blocky structure; very friable; few fine and medium roots; very strongly acid; clear smooth boundary.

Bt1—13 to 22 inches; brownish yellow (10YR 6/6) fine sandy loam; weak medium subangular blocky structure; very friable; few medium roots; few faint clay films on faces of peds; few medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Bt2—22 to 36 inches; brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; very friable; few medium roots; few faint clay films on faces of peds; few medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; common fine prominent gray (10YR 7/2) iron depletions; very strongly acid; clear wavy boundary.

Bt3—36 to 48 inches; 40 percent brownish yellow (10YR 6/6), 30 percent strong brown (7.5YR 5/8), and 30 percent gray (10YR 7/2) loam; weak medium subangular blocky structure; very friable; few faint clay films on faces of peds; the areas of strong brown are masses of iron accumulation and the areas of gray are iron depletions; very strongly acid; gradual smooth boundary.

Bt4—48 to 62 inches; 40 percent brownish yellow (10YR 6/6), 30 percent strong brown (7.5YR 5/8), and 30 percent gray (10YR 7/2) sandy clay loam; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; the areas of strong brown are masses of iron accumulation and the areas of gray are iron depletions; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3.

The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. Texture is fine sandy loam or sandy loam.

The upper part of the Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations is shades of brown or red. Texture is fine sandy loam, sandy loam, or loam.

The lower part of the Bt horizon has a similar range in colors as the upper part, or it has no dominant matrix color and is multicolored in shades of gray, brown, and red. It has common or many redox depletions in shades of gray. Texture is fine sandy loam, sandy loam, loam, or sandy clay loam.

Houlka Series

The Houlka series consists of very deep, somewhat poorly drained soils on flood plains. These soils formed in acid, clayey alluvium. Houlka soils are subject to flooding for brief periods one or more times each year. Slopes range from 0 to 1 percent.

Soils of the Houlka series are fine, smectitic, thermic Aeric Epiaquerts.

Houlka soils are commonly associated on the landscape with Consul, Halso, and Wilcox soils. Consul, Halso, and Wilcox soils are on adjacent uplands and are not subject to flooding. Consul and Wilcox soils are very fine textured. Halso soils are moderately well drained.

Typical pedon of Houlka silty clay loam, 0 to 1 percent slopes, frequently flooded, about 8 miles south of Thomaston, 2,100 feet east and 400 feet south of the northwest corner of sec. 28, T. 14 N., R. 5 E.

A—0 to 6 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium granular structure; friable; many fine roots; strongly acid; clear wavy boundary.

Bg—6 to 13 inches; dark grayish brown (10YR 4/2) clay; strong medium subangular blocky structure; firm; few fine roots; common pressure faces; few medium distinct gray (10YR 6/1) iron depletions; very strongly acid; clear wavy boundary.

Bssg1—13 to 34 inches; gray (10YR 6/1) silty clay; strong medium angular blocky structure; firm; few fine roots; common large intersecting slickensides that have distinct striated surfaces; common fine soft black masses (iron and manganese oxides); many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bssg2—34 to 49 inches; gray (10YR 6/1) clay; weak coarse subangular blocky structure parting to strong medium angular blocky; firm; common large intersecting slickensides that have distinct, polished and grooved surfaces; common fine soft black masses (iron and manganese oxides); many coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bssg3—49 to 65 inches; gray (5Y 6/1) clay; weak coarse subangular blocky structure parting to moderate medium angular blocky; firm; common large intersecting slickensides that have distinct, polished and grooved surfaces; common fine soft black masses (iron and manganese oxides); common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2.

The Bg horizon has hue of 10YR, value of 4 or 5, and chroma of 2. Some pedons have few or common redox accumulations in shades of brown and red. Texture is silty clay loam, clay loam, clay, or silty clay.

The Bssg horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown and red. Texture is clay or silty clay.

Iuka Series

The Iuka series consists of very deep, moderately well drained soils on stream flood plains. These soils formed in stratified loamy and sandy alluvium. Iuka soils are subject to frequent flooding for brief periods one or more times each year. Slopes range from 0 to 1 percent.

Soils of the Iuka series are coarse-loamy, siliceous, active, acid, thermic Aquic Udifluvents.

Iuka soils are commonly associated with Bibb, Kinston, and Mantachie soils. The poorly drained Bibb and Kinston soils and the somewhat poorly drained Mantachie soils are in slightly lower, less convex landscape positions than the Iuka soils.

Typical pedon of Iuka fine sandy loam, in an area of Bibb-Iuka complex, 0 to 1 percent slopes, frequently flooded; about 0.25 mile west of Shiloh, 1,830 feet east and 150 feet south of the northwest corner of sec. 1, T. 13 N., R. 3 E.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; strongly acid; clear wavy boundary.

A2—4 to 10 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; strongly acid; clear wavy boundary.

C—10 to 24 inches; yellowish brown (10YR 5/4) sandy loam; massive; very friable; common fine and medium roots; few thin strata of pale brown (10YR 6/3) loamy sand; common medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.

Cg—24 to 65 inches; light gray (10YR 7/2) sandy loam; massive; very friable; few fine roots; common thin strata of pale brown (10YR 6/3) loamy sand; few fine soft black masses (iron and manganese oxides); few medium distinct brownish yellow (10YR 6/8) masses of iron accumulation; strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added. Thin strata of contrasting textures are common in most pedons.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. It has redox depletions that have chroma of 2 or less within a depth of 20 inches. Texture is fine sandy loam, sandy loam, or loam.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown, red, or yellow. Texture is sandy loam, fine sandy loam, or loamy sand.

Izagora Series

The Izagora series consists of very deep, moderately well drained soils on low terraces that are adjacent to major streams. These soils formed in loamy alluvium. Izagora soils are rarely flooded, but they may be flooded during periods of unusually heavy and prolonged rainfall. Slopes range from 0 to 2 percent.

Soils of the Izagora series are fine-loamy, siliceous, semiactive, thermic Aquic Paleudults.

Izagora soils are commonly associated with Cahaba, Chrysler, Lenoir, and Urbo soils. Cahaba soils are in landscape positions similar to those of the Izagora soils. They are well drained and have a reddish subsoil. Chrysler and Lenoir soils are on terraces at slightly lower elevations than the Izagora soils. They have a clayey argillic horizon. Urbo soils are on adjacent flood plains and have a clayey cambic horizon.

Typical pedon of Izagora sandy loam, 0 to 2 percent slopes, rarely flooded, about 1.75 miles southeast of Dixons Mill, 2,400 feet west and 100 feet south of the northeast corner of sec. 3, T. 12 N., R. 3 E.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; many fine pores; moderately acid; abrupt smooth boundary.

Bt1—8 to 18 inches; light yellowish brown (10YR 6/4) loam; weak medium subangular blocky structure; very friable; few fine and medium roots; few faint clay films on faces on peds; strongly acid; clear smooth boundary.

Bt2—18 to 32 inches; brownish yellow (10YR 6/6) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine and medium roots; few faint clay films on faces of peds; few fine prominent yellowish red (2.5YR 5/8) masses of iron accumulation and common coarse distinct light brownish gray (2.5Y 6/2) iron depletions; strongly acid; clear smooth boundary.

Bt3—32 to 56 inches; 40 percent brownish yellow (10YR 6/6), 30 percent light brownish gray (10YR 6/2), and 30 percent yellowish red (5YR 5/8) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine and medium roots; common faint clay films on faces of peds; strongly acid; clear smooth boundary.

Btg—56 to 65 inches; grayish brown (10YR 5/2) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Some pedons have few or common redox accumulations in shades of brown, yellow, and red and redox depletions in shades of gray. Texture is loam or clay loam.

The lower part of the Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, gray, red, and yellow. It has common or many redox accumulations in shades of brown, yellow, and red and redox depletions in shades of gray. Texture is clay loam or clay.

The Btg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redox accumulations in shades of brown, yellow, and red. Texture is clay loam or clay.

Kinston Series

The Kinston series consists of very deep, poorly drained soils in low positions on flood plains. These soils formed in loamy alluvium. Kinston soils are subject to frequent flooding for brief periods several times each year. Slopes range from 0 to 1 percent.

Soils of the Kinston series are fine-loamy, siliceous, semiactive, acid, thermic Typic Fluvaquents.

Kinston soils are commonly associated on the landscape with Mantachie and Mooreville soils. The somewhat poorly drained Mantachie soils and the moderately well drained Mooreville soils are in slightly higher, more convex positions on flood plains than the Kinston soils.

Typical pedon of Kinston fine sandy loam, in an area of Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 1 mile south of Octagon, 2,000 feet north and 2,000 feet east of the southwest corner of sec. 15, T. 14 N., R. 3 E.

A—0 to 3 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

Cg1—3 to 14 inches; light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation; very strongly acid; clear wavy boundary.

Cg2—14 to 30 inches; light gray (10YR 7/1) loam; weak coarse subangular blocky structure; friable; few fine roots; few thin strata of pale brown (10YR 6/3) loamy sand; common medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Cg3—30 to 48 inches; light gray (2.5Y 7/1) clay loam; weak very coarse subangular blocky structure; firm; few medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Cg4—48 to 65 inches; gray (2.5Y 5/1) clay loam; massive; firm; few thin strata of light gray (10YR 7/1) loamy sand; few medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been applied.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It has few or common redox accumulations in shades of brown and yellow. The texture commonly is loam or clay loam. Thin strata of finer and coarser-textured material are in most pedons. Some pedons have textures of sand, loamy sand, or gravelly sand below a depth of 40 inches.

Kipling Series

The Kipling series consists of very deep, somewhat poorly drained soils on ridgetops in the Blackland Prairie. These soils formed in acid, clayey sediments overlying soft limestone (chalk). Slopes range from 1 to 5 percent.

Soils of the Kipling series are fine, smectitic, thermic Vertic Paleudalfs.

Kipling soils are commonly associated on the landscape with Brantley, Freest, Oktibbeha, Sumter, and Vaiden soils. Brantley and Oktibbeha soils are on adjacent side slopes. Brantley soils are well drained. Oktibbeha soils are very fine textured. Freest soils are in landscape positions similar to those of the Kipling soils but are at lower elevations. They have a loamy argillic horizon. Sumter soils are in higher positions than Kipling soils and are alkaline to the surface. Vaiden soils are in lower positions than the Kipling soils and are very fine textured.

Typical pedon of Kipling clay loam, 1 to 5 percent slopes, in the town of Linden, 1,000 feet west and 1,500 feet north of the southeast corner of sec. 4, T. 15 N., R. 3 E.

Ap—0 to 7 inches; dark yellowish brown (10YR 3/4) clay loam; moderate fine granular structure; friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

Bt1—7 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and common fine distinct light brownish gray (10YR 6/2) iron depletions; few fine soft black masses (iron and manganese oxides); strongly acid; clear smooth boundary.

Bt2—16 to 25 inches; light yellowish brown (10YR 6/4) silty clay; moderate medium subangular blocky structure; firm; few medium roots; common faint clay films on faces of peds; many medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and many medium distinct light brownish gray (10YR 6/2) iron depletions; few fine soft black masses (iron and manganese oxides); strongly acid; gradual wavy boundary.

Btss1—25 to 41 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent light gray (10YR 7/1) silty clay; weak coarse angular blocky structure parting to strong fine and medium angular blocky structure; firm; few fine and medium roots; few large intersecting slickensides that have distinct, polished and grooved surfaces; areas of light gray are iron depletions; strongly acid; gradual smooth boundary.

Btss2—41 to 65 inches; 55 percent light yellowish brown (2.5Y 6/3) and 45 percent gray (2.5Y 6/1) silty clay; weak coarse angular blocky structure parting to moderate fine and medium angular blocky; few very fine roots; common large intersecting slickensides that have distinct, polished and grooved surfaces; common fine soft black masses (iron and manganese oxides); areas of gray are iron depletions; moderately acid.

The thickness of the solum and the depth to soft limestone (chalk) is more than 60 inches.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Reaction ranges from very strongly acid to moderately acid, except in areas where lime has been added.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, gray, and red. It has common or many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. Texture is silty clay loam, silty clay, or clay. Reaction ranges from very strongly acid to moderately acid.

The Btss horizon has hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 4 to 6; or it has no dominant matrix color and is multicolored in shades of brown, olive, red, and gray. It has few to many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. Reaction ranges from very strongly acid to moderately acid. Texture is silty clay or clay.

The Bkss horizon, if it occurs, has a range in colors similar to that of the Btss horizon. It has few to many soft masses or concretions of calcium carbonate. Reaction ranges from slightly acid to moderately alkaline. Texture is silty clay loam, silty clay, or clay.

Lenoir Series

The Lenoir series consists of very deep, somewhat poorly drained soils on low terraces adjacent to the Tombigbee River and other major streams. These soils formed in clayey sediments. Lenoir soils are subject to occasional flooding. Slopes range from 0 to 2 percent.

Soils of the Lenoir series are fine, mixed, semiactive, thermic Aeric Paleaquults.

Lenoir soils are commonly associated on the landscape with Bigbee, Cahaba, Chrysler, Minter, and Urbo soils. Bigbee and Cahaba soils are in higher, more convex landscape positions than Lenoir soils. Bigbee soils are sandy throughout the profile. Cahaba soils are fine-loamy. Chrysler soils are in slightly higher, more convex landscape positions and have reddish colors in the upper part of the argillic horizon. The poorly drained Minter soils are in slightly lower positions than the Lenoir soils. Urbo soils are on adjacent flood plains and are subject to frequent flooding.

Typical pedon of Lenoir loam, in an area of Chrysler-Lenoir complex, gently undulating, occasionally flooded; about 3 miles west of Demopolis, 250 feet east and 1,200 feet north of the southwest corner of sec. 22, T. 18 N., R. 2 E.

Ap—0 to 3 inches; grayish brown (10YR 5/2) loam; weak medium granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

E—3 to 10 inches; pale brown (10YR 6/3) loam; weak coarse subangular blocky structure; very friable; many fine roots; many medium faint grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Bt1—10 to 22 inches; light olive brown (2.5Y 5/4) clay loam; moderate medium subangular blocky structure; firm; common fine roots; nearly continuous distinct light brownish gray (2.5Y 6/2) clay films on faces of peds; common medium and coarse distinct light gray (2.5Y 7/2) iron depletions within the matrix; very strongly acid; clear wavy boundary.

Btg1—22 to 45 inches; light brownish gray (2.5Y 6/2) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; common faint clay films on faces of peds; common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Btg—45 to 66 inches; light gray (2.5Y 7/2) clay; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; common coarse distinct brownish yellow (10YR 6/6) masses of iron accumulation; very strongly acid; gradual smooth boundary.

BCg—66 to 80 inches; 60 percent light gray (2.5Y 7/2) and 40 percent yellowish brown (10YR 5/4) clay loam; weak very coarse subangular blocky structure; firm; areas of yellowish brown are masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. Texture is fine sandy loam or loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It has few or common redox accumulations in shades of brown and redox depletions in shades of gray. Texture is fine sandy loam or loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8; or it has no dominant matrix color and is multicolored in shades of brown, yellow, and gray. It has common or many redox accumulations in shades of brown, yellow, and red and redox depletions in shades of gray. Texture is clay, clay loam, silty clay loam, or silty clay.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown and yellow. Texture is clay, clay loam, silty clay loam, or silty clay.

The BCg horizon has colors similar to those of the Btg horizon, or it has no dominant matrix color and is multicolored in shades of gray and brown. Texture is clay, clay loam, silty clay loam, or silty clay.

Lucedale Series

The Lucedale series consists of very deep, well drained soils on high terraces. These soils formed in loamy sediments. Slopes range from 0 to 2 percent.

Soils of the Lucedale series are fine-loamy, siliceous, subactive, thermic Rhodic Paleudults.

Lucedale soils are commonly associated on the landscape with Bama and Smithdale soils. Bama soils are in landscape positions similar to those of the Lucedale soils. They do not have dark red colors throughout the argillic horizon. Smithdale soils are on adjacent side slopes and do not have dark red colors throughout the argillic horizon.

Typical pedon of Lucedale fine sandy loam, 0 to 2 percent slopes, about 0.5 miles south of Jefferson, 1,350 feet west and 200 feet north of the southeast corner of sec. 5, T. 16 N., R. 2 E.

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

Bt1—8 to 30 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; moderate medium subangular blocky structure; firm; common fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—30 to 65 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches.

The Ap horizon has hue of 5YR, value of 3, and chroma of 2 to 4. Reaction is strongly acid or moderately acid, except in areas where lime has been applied.

The Bt horizon has hue of 2.5YR, value of 3, and chroma of 4 to 6. Texture is sandy clay loam, clay loam, or loam. Reaction is very strongly acid or strongly acid throughout.

Luverne Series

The Luverne series consists of very deep, well drained soils on ridgetops and side slopes of the uplands. These soils formed in stratified clayey and loamy sediments. Slopes range from 2 to 45 percent.

Soils of the Luverne series are fine, mixed, semiactive, thermic Typic Hapludults.

Luverne soils are commonly associated on the landscape with Boykin, Halso, Smithdale, and Wadley soils. Boykin, Smithdale, and Wadley soils are in landscape positions similar to those of the Luverne soils. Boykin and Wadley soils have a thick sandy epipedon. Smithdale soils are fine-loamy. Halso soils are in landscape positions similar to those of the Luverne soils but are at lower elevations. They have smectitic clay mineralogy.

Typical pedon of Luverne fine sandy loam, 5 to 15 percent slopes, eroded, about 1 mile east of Bethlehem Church, 800 feet west and 1,000 feet north of the southeast corner of sec. 21, T. 14 N., R. 3 E.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

Bt1—6 to 18 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; many fine roots; common faint clay films on faces of peds; extremely acid; gradual wavy boundary.

Bt2—18 to 26 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; many fine roots; common distinct clay films on faces of peds; common fine flakes of mica; common medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; extremely acid; clear wavy boundary.

Bt3—26 to 37 inches; yellowish red (5YR 4/6) sandy clay; firm; few fine roots; common faint clay films on faces of peds; common fine flakes of mica; common medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; extremely acid; gradual wavy boundary.

BC—37 to 50 inches; red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; firm; common fine flakes of mica; common medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; extremely acid; clear wavy boundary.

C—50 to 65 inches; thinly stratified yellowish red (5YR 4/6) sandy clay loam and brownish yellow (10YR 6/6) sandy loam; weak medium platy structure; friable; common fine flakes of mica; few thin lenses of ironstone; extremely acid.

The thickness of the solum ranges from 20 to 50 inches. Reaction ranges from extremely acid to strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is sandy loam or fine sandy loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Texture is clay loam, sandy clay, or clay.

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

The C horizon consists of stratified, loamy to clayey sediments that have a high content of mica. The texture of individual strata ranges from loamy sand to clay, and the thickness of individual strata ranges from a few millimeters to several centimeters. Some pedons have few to common thin strata of clayey shale or ironstone. The colors are variable, but sandy and loamy strata commonly have hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 5 to 8. The clayey strata are generally gray in color.

Mantachie Series

The Mantachie series consists of very deep, somewhat poorly drained soils on the flood plains of streams. These soils formed in loamy alluvium. Mantachie soils are subject to flooding for brief periods one or more times in most years. Slopes range from 0 to 1 percent.

Soils of the Mantachie series are fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts.

Mantachie soils are commonly associated on the landscape with Iuka, Kinston, and Mooreville soils. Iuka and Mooreville soils are in slightly higher, more convex positions than the Mantachie soils. Iuka soils are coarse-loamy. Mooreville soils are moderately well drained. The poorly drained Kinston soils are in slightly lower positions than the Mantachie soils and are grayish throughout the profile.

Typical pedon of Mantachie fine sandy loam, in an area of Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 2 miles north of Shiloh, 900 feet south and 1,800 feet west of the northeast corner of sec. 25, T. 14 N., R. 3 E.

Ap—0 to 3 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

Bw—3 to 11 inches; 40 percent yellowish brown (10YR 5/6), 30 percent brown (10YR 5/3), and 30 percent grayish brown (2.5Y 5/2) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; areas of yellowish brown are masses of iron accumulation and areas of grayish brown are iron depletions; very strongly acid; clear smooth boundary.

Bg1—11 to 41 inches; light brownish gray (10YR 6/2) sandy clay loam; weak coarse subangular blocky structure; friable; few fine roots; common medium distinct brownish yellow (10YR 6/8) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear smooth boundary.

Bg2—41 to 62 inches; grayish brown (10YR 5/2) sandy clay loam; weak coarse subangular blocky structure; friable; many medium distinct yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid.

The thickness of the solum ranges from 30 to 65 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The Bw horizon has hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 to 6; or it has no dominant matrix color and is multicolored in shades of gray, brown, and yellow. It has common or many redox depletions in shades of gray. Texture is loam, clay loam, or sandy clay loam.

The Bg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redox accumulations in shades of brown, yellow, and red. Texture is loam, clay loam, or sandy clay loam.

Minter Series

The Minter series consists of very deep, poorly drained soils on low stream terraces. These soils formed in clayey sediments. Minter soils are subject to occasional flooding. Slopes range from 0 to 1 percent.

Soils of the Minter series are fine, mixed, semiactive, thermic Typic Endoaqualfs.

Minter soils are commonly associated on the landscape with Cahaba, Chrysler, and Lenoir soils. Cahaba, Chrysler, and Lenoir soils are in higher positions than the Minter soils. The well drained Cahaba soils are fine-loamy. The moderately well drained Chrysler soils have a reddish argillic horizon. The somewhat poorly drained Lenoir soils are brownish in the upper part of the argillic horizon.

Typical pedon of Minter loam, 0 to 1 percent slopes, occasionally flooded, about 4 miles south of Jefferson, 2,200 feet east and 1,300 feet south of the northwest corner of sec. 29, T. 16 N., R. 2 E.

Ap—0 to 5 inches; gray (10YR 5/1) loam; weak medium granular structure; friable; many fine roots; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in root channels; strongly acid; clear smooth boundary.

Btg1—5 to 10 inches; light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; many fine roots; common distinct clay films on faces of peds; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg2—10 to 20 inches; gray (10YR 6/1) clay loam; moderate medium subangular blocky structure; many fine roots; common faint clay films on faces of peds; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg3—20 to 55 inches; gray (10YR 6/1) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg4—55 to 65 inches; light gray (10YR 7/1) sandy clay loam; weak coarse subangular blocky structure; firm; common faint clay films on faces of peds; many medium prominent strong brown (7.5YR 5/8) and common medium prominent red (2.5YR 4/8) masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The Btg horizon has hue of 10YR or 2.5Y. It has value of 4 or 5 and chroma of 1 or less, or it has value of 6 or 7 and chroma of 2 or less. It has few to many redox accumulations in shades of yellow, brown, or red. Texture is clay, clay loam, silty clay loam, or silty clay.

Mooreville Series

The Mooreville series consists of very deep, moderately well drained soils on stream flood plains. These soils formed in loamy alluvium. Mooreville soils are subject to frequent flooding for brief periods one or more times each year. Slopes range from 0 to 2 percent.

Soils of the Mooreville series are fine-loamy, siliceous, active, thermic Fluvaquentic Dystrochrepts.

Mooreville soils are commonly associated on the landscape with Kinston, Mantachie, Una, and Urbo soils. The poorly drained Kinston and Una soils are in lower positions than the Mooreville soils. They have grayish colors throughout the profile. Mantachie and Urbo soils are in slightly lower, less convex positions than the Mooreville soils. Mantachie soils are somewhat poorly drained. Urbo soils are somewhat poorly drained and are clayey throughout the profile.

Typical pedon of Mooreville loam, in an area of Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 2 miles south of Dixons Mill, 1,100 feet south and 200 feet east of the northwest corner of sec. 10, T. 12 N., R. 3 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

Bw1—5 to 14 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear smooth boundary.

Bw2—14 to 23 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear smooth boundary.

Bw3—23 to 48 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable; few fine roots; many medium distinct light brownish gray (10YR 6/2) iron depletions and few medium distinct brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

C—48 to 72 inches; 40 percent light brownish gray (10YR 6/2), 30 percent yellowish brown (10YR 5/4), and 30 percent brownish yellow (10YR 6/8) loam; massive; very friable; few thin strata of pale brown (10YR 6/3) loamy sand; areas of yellowish brown and brownish yellow are masses of iron accumulation and areas of light brownish gray are iron depletions; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 4 to 8. It has few to many redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and red. Texture is sandy clay loam, clay loam, or loam.

The C horizon commonly has no dominant matrix color and is multicolored in shades of brown, yellow, and gray. Thin strata of finer or coarser textured material are in most pedons. Texture is loam, sandy loam, clay loam, or sandy clay loam.

Okeelala Series

The Okeelala series consists of very deep, well drained soils on side slopes of the uplands. These soils formed in loamy sediments. Slopes range from 15 to 35 percent.

Soils of the Okeelala series are fine-loamy, siliceous, semiactive, thermic Ultic Hapludalfs.

Okeelala soils are commonly associated on the landscape with Boykin and Brantley soils. Boykin soils are in higher landscape positions than the Okeelala soils and have a thick sandy epipedon. Brantley soils are in landscape positions similar to those of the Okeelala soils and have a clayey argillic horizon.

Typical pedon of Okeelala fine sandy loam, in an area of Brantley-Okeelala complex, 15 to 35 percent slopes, eroded; about 4.5 miles northeast of Sweetwater, 1,200 feet south and 2,000 feet east of the northwest corner of sec. 4, T. 13 N., R. 3 E.

A—0 to 3 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; about 5 percent nodules of ironstone; very strongly acid; abrupt wavy boundary.

Bt1—3 to 10 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common faint clay films on faces of peds and in pores; strongly acid; clear wavy boundary.

Bt2—10 to 19 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common faint clay films on faces of peds and in pores; strongly acid; clear wavy boundary.

Bt3—19 to 65 inches; red (2.5YR 4/6) loam; weak medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 4. The texture is fine sandy loam, sandy loam, or loamy sand.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Some pedons have few or common redox accumulations in shades of red or brown. The texture is commonly clay loam or sandy clay loam in the upper part and loam or sandy loam in the lower part.

The C horizon, if it occurs, has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It has few to many redox accumulations in shades of brown and red. The texture is fine sandy loam, sandy loam, loamy fine sand, or sand. Strata of coarser and finer textured material are in most pedons.

Oktibbeha Series

The Oktibbeha series consists of very deep, moderately well drained soils on ridgetops and side slopes in the Blackland Prairie. These soils formed in acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk). Slopes range from 1 to 8 percent.

Soils of the Oktibbeha series are very-fine, smectitic, thermic Chromic Dystruderts.

Oktibbeha soils are commonly associated on the landscape with Brantley, Kipling, Searcy, Sumter, and Watsonia soils. Brantley and Watsonia soils are in landscape positions similar to those of the Oktibbeha soils. Brantley soils do not have vertic properties. Watsonia soils are shallow over soft limestone (chalk). Kipling and Searcy soils are in lower positions than the Oktibbeha soils. They are fine-textured. Sumter soils are in lower positions than the Oktibbeha soils. They are moderately deep over soft limestone (chalk) and are alkaline throughout the profile.

Typical pedon of Oktibbeha clay loam, 1 to 5 percent slopes, about 1 mile northeast of Dayton, 1,800 feet east and 1,800 feet south of the northwest corner of sec. 18, T. 16 N., R. 5 E.

Ap—0 to 4 inches; dark brown (10YR 3/3) clay loam; weak medium subangular blocky structure; firm; many fine and very fine roots; slightly acid; abrupt smooth boundary.

Bt1—4 to 9 inches; yellowish red (5YR 5/6) clay; moderate fine and medium subangular blocky structure; firm; common fine roots and few coarse roots; distinct pressure faces on surfaces of peds; very strongly acid; clear wavy boundary.

Bt2—9 to 13 inches; yellowish red (5YR 5/6) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine roots and few coarse roots; distinct pressure faces on surfaces of peds; few medium distinct red (2.5YR 5/6) masses of iron accumulation within the matrix; very strongly acid; clear wavy boundary.

Btss1—13 to 34 inches; yellowish brown (10YR 5/6) clay; weak coarse prismatic blocky structure parting to moderate medium subangular blocky; firm; few fine roots; common large intersecting slickensides that have distinct, polished and grooved surfaces; few medium faint strong brown (7.5YR 4/6) masses of iron accumulation and few fine faint pale brown (10YR 6/3) iron depletions on faces of peds and within the matrix; very strongly acid; clear wavy boundary.

Btss2—34 to 45 inches; yellowish brown (10YR 5/6) clay; weak coarse subangular blocky structure parting to moderate medium subangular and angular blocky; firm; few fine roots flattened on structural faces; common large intersecting slickensides that have prominent, polished and grooved surfaces; common medium distinct light brownish gray (10YR 6/2) iron depletions on faces of peds and within the matrix; slightly acid; abrupt wavy boundary.

Bkss1—45 to 62 inches; silty clay that is light olive brown (2.5Y 5/4) in the interior and is olive gray (2.5Y 6/2) on the exterior; weak very coarse subangular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots flattened on structural surfaces; common large intersecting slickensides that have prominent, polished and grooved surfaces; few fine and medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; olive gray areas on faces of slickensides are iron depletions; many fine and medium rounded soft masses of calcium carbonate and few fine rounded calcium carbonate nodules; violently effervescent; slightly alkaline; clear wavy boundary.

Bkss2—62 to 80 inches; clay that is light olive brown (2.5Y 5/6) in the interior and is olive gray (5Y 5/2) on the exterior; weak very coarse subangular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots flattened on structural surfaces; common large intersecting slickensides that have prominent, polished and grooved surfaces; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; olive gray areas on faces of slickensides are iron depletions; many fine and medium rounded soft masses of calcium carbonate; violently effervescent; moderately alkaline.

The depth to horizons that have secondary carbonates ranges from 30 to 50 inches. The depth to soft limestone (chalk) is more than 60 inches.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. Reaction ranges from very strongly acid to moderately acid, except in areas where lime has been added. Texture is clay loam or clay.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of brown and red. Reaction ranges from extremely acid to strongly acid.

The upper part of the Btss horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, red, and gray. Reaction ranges from extremely acid to strongly acid. Texture is clay.

The lower part of the Btss horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6. It has few or many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. Reaction ranges from extremely acid to slightly acid. Texture is clay.

The Bkss horizon has hue of 10YR to 5Y and value of 4 to 6. The chroma ranges from 4 to 8 in the ped interiors and from 2 to 4 on the exterior faces of peds or on slickenside faces. It has few to many redox depletions in shades of gray and redox accumulations in shades of brown. They are commonly on the surface of peds or slickensides. Some pedons do not have a dominant matrix color and are multicolored in shades of olive, brown, and gray. Reaction ranges from neutral to moderately alkaline. Texture is clay or silty clay. This horizon has common or many soft masses of calcium carbonate and few to many concretions of calcium carbonate.

The 2C horizon, if it occurs, is soft limestone (chalk) or alkaline clay. It is massive or has platy rock structure. Some pedons have a 2Cr horizon below a depth of 60 inches that is soft limestone (chalk). It can be dug with difficulty with hand tools and is rippable by light machinery.

Riverview Series

The Riverview series consists of very deep, well drained soils on high parts of the flood plain of the Tombigbee River. These soils formed in stratified loamy alluvium. Riverview soils are subject to occasional flooding. Slopes range from 0 to 2 percent.

Soils of the Riverview series are fine-loamy, mixed, active, thermic Fluventic Dystrochrepts.

Riverview soils are commonly associated on the landscape with Bigbee, Mooreville, Una, and Urbo soils. Bigbee and Mooreville soils are in landscape positions similar to those of the Riverview soils. Bigbee soils are sandy throughout the profile. Mooreville soils are moderately well drained. Una and Urbo soils are in slightly lower, less convex positions and are clayey throughout the profile.

Typical pedon of Riverview fine sandy loam, 0 to 2 percent slopes, occasionally flooded, about 0.75 mile south of Moscow, 1,400 feet north and 300 feet west of the southeast corner of sec. 25, T. 17 N., R. 1 W.

A—0 to 10 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Bw1—10 to 25 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Bw2—25 to 39 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; clear smooth boundary.

Bw3—39 to 56 inches; yellowish brown (10YR 5/6) clay loam; weak coarse subangular blocky structure; friable; few fine roots; common fine flakes of mica; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation and few faint light gray (10YR 7/2) iron depletions; very strongly acid; gradual smooth boundary.

C—56 to 65 inches; thinly stratified yellowish brown (10YR 5/6) sandy loam, brown (7.5YR 4/4) loam, and pale brown (10YR 6/3) loamy sand; massive; very friable; many fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 24 inches to 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6. Some pedons have few or common redox accumulations in shades of yellow, brown, and red. Texture is loam, silt loam, sandy clay loam, or clay loam.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma or 4 to 6. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of red, brown, and yellow. This horizon is commonly stratified. The texture of individual strata is loam, sandy loam, loamy fine sand, loamy sand, or sand.

Savannah Series

The Savannah series consists of very deep, moderately well drained soils on high stream terraces. These soils formed in loamy sediments. Slopes range from 0 to 2 percent.

Soils of the Savannah series are fine-loamy, siliceous, semiactive, thermic Typic Fragiudults.

Savannah soils are commonly associated on the landscape with Bama, Bonneau, Izagora, and Smithdale soils. Bama soils are in landscape positions similar to those of the Savannah soils but are at higher elevations. They have a reddish argillic horizon and do not have a fragipan. Bonneau and Izagora soils are in landscape positions similar to those of the Savannah soils but are at lower elevations. Bonneau soils have a thick sandy epipedon. Izagora soils do not have a fragipan. Smithdale soils are on adjacent side slopes. They have a reddish argillic horizon and do not have a fragipan.

Typical pedon of Savannah fine sandy loam, 0 to 2 percent slopes, about 2 miles west of Coxheath, 800 feet west and 600 feet south of the northeast corner of sec. 26, T. 13 N., R. 1 E.

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; moderately acid; abrupt smooth boundary.

E—8 to 14 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and medium roots; moderately acid; clear smooth boundary.

Bt1—14 to 20 inches; light olive brown (2.5Y 5/6) loam; weak medium subangular blocky structure; very friable; many fine and medium roots; few faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—20 to 27 inches; light olive brown (2.5Y 5/6) loam; weak medium subangular blocky structure; very friable; few fine roots; few faint clay films on faces of peds; common fine distinct brownish yellow (10YR 6/8) masses of iron accumulation; strongly acid; abrupt smooth boundary.

Btx1—27 to 42 inches; yellowish brown (10YR 5/8) loam; moderate very coarse prismatic structure; firm; brittle in about 60 percent of the mass; few fine roots in seams between prisms; few faint clay films on faces of peds; common medium distinct gray (10YR 7/2) clay depletions on faces of prisms; common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; very strongly acid; gradual wavy boundary.

Btx2—42 to 65 inches; yellowish brown (10YR 5/8) loam; moderate very coarse prismatic structure; firm; brittle in about 70 percent of the mass; few fine roots in seams between prisms; few faint clay films on faces of peds; common medium distinct gray (10YR 7/2) iron depletions on faces of prisms; many medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; very strongly acid.

The thickness of the solum ranges from 50 to more than 80 inches. The depth to the fragipan ranges from 20 to 30 inches. Reaction is very strongly acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is fine sandy loam or loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6. Some pedons have few or common redox accumulations in shades of brown. Texture is loam, clay loam, or sandy clay loam.

The Btx horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Some pedons have few to many redox accumulations in shades of brown and redox depletions in shades of gray. Texture is loam, clay loam, or sandy clay loam.

Searcy Series

The Searcy series consists of very deep, moderately well drained soils on side slopes in the uplands of the Blackland Prairie. These soils formed in clayey sediments. Slopes range from 5 to 8 percent.

Soils of the Searcy series are fine, mixed, active, thermic Aquic Paleudalfs.

Searcy soils are commonly associated on the landscape with Brantley, Freest, and Oktibbeha soils. Brantley soils are in landscape positions similar to those of the Searcy soils. They do not have low-chroma redox depletions in the upper part of the argillic horizon. Freest soils are on stream terraces at lower elevations than the Searcy soils. They are fine-loamy. Oktibbeha soils are commonly in lower positions than the Searcy soils. They are very fine textured and have smectitic clay mineralogy.

Typical pedon of Searcy fine sandy loam, 5 to 8 percent slopes, eroded, about 2.5 miles northeast of Thomaston, 1,300 feet north and 1,600 feet west of the southeast corner of sec. 5, T. 16 N., R. 5 E.

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

E—3 to 8 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine roots and few medium roots; very strongly acid; clear smooth boundary.

Bt1—8 to 22 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of peds; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bt2—22 to 31 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common fine flakes of mica; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation and common fine prominent light gray (10YR 7/1) iron depletions; very strongly acid; clear smooth boundary.

2Bt3—31 to 65 inches; 55 percent red (2.5YR 4/8) and 45 percent light gray (10YR 7/1) clay; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; common faint clay films on faces of peds; many fine flakes of mica; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction ranges from extremely acid to moderately acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. Texture is fine sandy loam, sandy loam, or loam.

The upper part of the Bt horizon has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 6. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of brown and red. Texture is clay loam, clay, or sandy clay.

The lower part of the Bt horizon has colors similar to those of the upper part, or it does not have a dominant matrix color and is multicolored in shades of red, brown, and gray. The texture is sandy clay, clay, or silty clay.

The 2Bt horizon, if it occurs, commonly does not have a dominant matrix color and is multicolored in shades of brown, gray, and red. Texture is silty clay, sandy clay, or clay.

Smithdale Series

The Smithdale series consists of very deep, well drained soils on narrow ridgetops and on side slopes of the uplands. These soils formed in loamy sediments. Slopes range from 5 to 45 percent.

Soils of the Smithdale series are fine-loamy, siliceous, subactive, thermic Typic Hapludults.

Smithdale soils are commonly associated on the landscape with Bama, Boykin, Lucedale, Luverne, and Wadley soils. Bama and Lucedale soils are in higher landscape positions than the Smithdale soils. Bama soils have an argillic horizon that does not decrease in clay content with increasing depth. Lucedale soils have a dark red argillic horizon. Boykin, Luverne, and Wadley soils are in landscape positions similar to those of the Smithdale soils. Boykin and Wadley soils have a thick sandy epipedon. Luverne soils have a clayey argillic horizon.

Typical pedon of Smithdale loamy sand, 5 to 8 percent slopes, about 0.5 miles west of Putman, 2,100 feet west and 2,600 feet south of the northeast corner of sec. 12, T. 12 N., R. 1 W.

Ap—0 to 7 inches; brown (7.5YR 5/4) loamy sand; single grained; loose; common fine and medium roots; moderately acid; gradual wavy boundary.

Bt1—7 to 49 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—49 to 69 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; very friable; few streaks of uncoated sand; sand grains are coated and bridged with clay; very strongly acid; gradual smooth boundary.

Bt3—69 to 75 inches; red (2.5YR 5/8) sandy loam; weak coarse subangular blocky structure; very friable; few streaks of uncoated sand; sand grains are coated and bridged with clay; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. Texture is loamy fine sand or loamy sand.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. Texture is sandy clay loam, clay loam, or loam.

The lower part of the Bt horizon has colors similar to those of the upper part. It commonly has streaks and pockets of uncoated sand. Texture is sandy loam or loam.

Steens Series

The Steens series consists of very deep, somewhat poorly drained soils on low stream terraces. These soils formed in loamy sediments. Slopes range from 0 to 2 percent.

Soils of the Steens series are fine-loamy, siliceous, semiactive, thermic Aeric Endoaqualfs.

Steens soils are commonly associated on the landscape with Harleston and Yonges soils. The moderately well drained Harleston soils are in slightly higher, more convex positions than the Steens soils. The poorly drained Yonges soils are in slightly lower, more concave positions than the Steens soils.

Typical pedon of Steens fine sandy loam, in an area of Steens-Yonges-Harleston complex, 0 to 2 percent slopes; about 4.5 miles south of Nanafalia, 2,400 feet east and 2,000 feet north of the southwest corner of sec. 33, T. 13 N., R. 2 E.

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

E—5 to 13 inches; pale brown (10YR 6/3) fine sandy loam; weak coarse subangular blocky structure; very friable; common fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid; clear smooth boundary.

Bt—13 to 36 inches; 50 percent yellowish brown (10YR 5/6) and 50 percent light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; very friable; few fine roots; common faint clay films on faces of peds; areas of light brownish gray are iron depletions; strongly acid; gradual smooth boundary.

Btg1—36 to 46 inches; light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common faint clay films on faces of peds; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Btg2—46 to 60 inches; gray (10YR 5/1) clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; many medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3.

The E horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. Texture is loam or fine sandy loam.

The Bt horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 8; or it does not have a matrix color and is multicolored in shades of brown and gray. This horizon has common or many redox depletions and accumulations. Texture is sandy clay loam, loam, or clay loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown and red. Texture is loam, sandy clay loam, or clay loam.

Subran Series

The Subran series consists of very deep, moderately well drained soils on broad ridgetops in the uplands. These soils formed in loamy and clayey marine sediments. Slopes range from 2 to 5 percent.

Soils of the Subran series are fine, mixed, semiactive, thermic Aquic Paleudults.

Subran soils are commonly associated on the landscape with Brantley, Luverne, and Oktibbeha soils. Brantley, Luverne, and Oktibbeha soils are on adjacent side slopes. Brantley soils have a base saturation of 35 to 60 percent in the lower part of the subsoil. Luverne soils are well drained. Oktibbeha soils have vertic properties.

Typical pedon of Subran loam, 2 to 5 percent slopes, about 0.75 miles east of Thomaston, 1,300 feet north and 2,100 feet west of the southeast corner of sec. 18, T. 15 N., R. 5 E.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; many fine and few medium roots; few fine and medium black and brown nodules (iron and manganese oxides); moderately acid; abrupt smooth boundary.

Btc1—7 to 23 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few distinct clay films on faces of peds; common fine and few medium black and brown nodules (iron and manganese oxides); common black web-like stains on faces of some peds; strongly acid; clear smooth boundary.

Btc2—23 to 30 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few distinct clay films on faces of peds; common fine and few medium black and brown nodules (iron and manganese oxides); few fine distinct light brownish gray (10YR 6/2) iron depletions and common medium prominent reddish yellow (5YR 6/8) masses of iron accumulation; strongly acid; clear smooth boundary.

Btc3—30 to 48 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of peds; many medium and common coarse black and brown nodules (iron and manganese oxides); common medium distinct light gray (2.5Y 7/2) iron depletions and few coarse prominent reddish yellow (5YR 6/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

B´t—48 to 65 inches; 45 percent yellowish brown (10YR 5/6), 35 percent red (2.5YR 4/6), and 20 percent light gray (2.5Y 7/2) clay; moderate coarse subangular blocky structure parting to moderate medium angular blocky; firm; few fine roots; common faint clay films on faces of peds; areas of yellowish brown and red are masses of iron accumulation and areas of light gray are iron depletions; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface layer in areas where lime has been added. The content of black nodules or stains, which are presumed to be iron and manganese oxides, is few in the Ap and B´t horizons and is common or many in the Btc horizon.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The upper part of the Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Texture is generally clay loam but can range to clay. Redox depletions that have chroma of 2 or less are within a depth of 30 inches.

The lower part of the Bt horizon has colors similar to those of the upper part, or it has no dominant matrix color and is multicolored in shades of brown, gray, yellow, and red. Texture is clay loam, clay, or silty clay.

Sucarnoochee Series

The Sucarnoochee series consists of very deep, somewhat poorly drained soils on flood plains of the Blackland Prairie. These soils formed in alkaline, clayey alluvium. Sucarnoochee soils are subject to frequent flooding for brief periods in late winter and early spring in most years. Slope ranges from 0 to 1 percent.

Soils of the Sucarnoochee series are fine, smectitic, thermic Chromic Epiaquerts.

Sucarnoochee soils are commonly associated on the landscape with Faunsdale, Freest, Sumter, Tuscumbia, and Vaiden soils. Faunsdale, Sumter, and Vaiden soils are on adjacent uplands and are not subject to flooding. Faunsdale soils have olive brown colors in the upper part of the subsoil. Sumter soils are moderately deep over bedrock. Vaiden soils are acid in the upper part of the subsoil. Freest soils are on adjacent stream terraces and are fine-loamy. Tuscumbia soils are in slightly lower, more concave positions than the Sucarnoochee soils. They are poorly drained.

Typical pedon of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded, about 3 miles northeast of Dayton, 2,300 feet west and 200 feet north of the southeast corner of sec. 9, T. 16 N., R. 5 E.

Ap—0 to 10 inches; dark grayish brown (2.5Y 4/2) clay; moderate fine subangular blocky structure; firm, common fine roots; neutral; abrupt wavy boundary.

AB—10 to 18 inches; dark grayish brown (2.5Y 4/2) clay; strong medium subangular blocky structure; firm; common fine roots; common medium distinct olive yellow (2.5Y 6/6) masses of iron accumulation; neutral; clear wavy boundary.

Bss1—18 to 33 inches; dark grayish brown (2.5Y 4/2) clay; moderate coarse angular blocky structure parting to strong medium angular blocky; very firm; few fine roots; common large slickensides that have distinct, polished and grooved surfaces; few soft black masses (iron and manganese oxides); common coarse distinct strong brown (7.5YR 5/8) and common medium distinct olive yellow (2.5Y 6/6) masses of iron accumulation; neutral; gradual wavy boundary.

Bss2—33 to 47 inches; dark grayish brown (2.5Y 4/2) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; common large slickensides that have distinct, polished and grooved surfaces; few soft black masses (iron and manganese oxides); many coarse distinct strong brown (7.5YR 5/8) masses of iron accumulation; neutral; gradual wavy boundary.

Bkss—47 to 65 inches; 40 percent gray (2.5Y 6/1), 30 percent light olive brown (2.5Y 5/4), and 30 percent strong brown (7.5YR 5/8) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; common large slickensides that have distinct polished and grooved surfaces; common fine soft masses and concretions of calcium carbonate; few soft black masses (iron and manganese oxides); areas of gray are iron depletions and areas of strong brown (7.5YR 5/8) are masses of iron accumulation; slightly alkaline.

The thickness of the solum is more than 60 inches. Reaction ranges from neutral to moderately alkaline throughout the profile.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3.

The AB horizon, if it occurs, has hue of 10YR to 5Y, value of 3 or 4, and chroma of 1 to 3. The texture is clay or silty clay.

The Bss horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 to 6; or it has no dominant matrix color and is multicolored in shades of brown, olive, yellow, and gray. It has few to many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and olive. Texture is silty clay or clay.

The Bkss horizon generally has no dominant matrix color and is multicolored in shades of olive, brown, and gray. It has few to many soft masses or nodules of calcium carbonate.

Sumter Series

The Sumter series consists of moderately deep, well drained soils on ridgetops and side slopes of uplands in the Blackland Prairie. These soils formed in alkaline, loamy and clayey residuum derived from soft limestone (chalk). Slopes range from 1 to 12 percent.

Soils of the Sumter series are fine-silty, carbonatic, thermic Rendollic Eutrochrepts.

Sumter soils are commonly associated on the landscape with Demopolis, Faunsdale, Oktibbeha, Sucarnoochee, and Watsonia soils. Demopolis, Oktibbeha, and Watsonia soils are in landscape positions similar to those of the Sumter soils. Demopolis soils are shallow over bedrock. Oktibbeha soils are acid in the upper part of the subsoil. Watsonia soils are shallow over bedrock and are acid in the upper part of the subsoil. Faunsdale soils are in lower positions than the Sumter soils and are very deep over bedrock. Sucarnoochee soils are on adjacent flood plains and are subject to frequent flooding.

Typical pedon of Sumter silty clay loam, in an area of Sumter-Watsonia complex, 1 to 3 percent slopes; about 1.8 miles northeast of Dayton, 950 feet west and 1,750 feet south of the northeast corner of sec. 7, T. 16 N., R. 5 E.

Ap—0 to 5 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium granular structure; friable; many fine roots; common fine and medium nodules of calcium carbonate; strongly effervescent; slightly alkaline; abrupt smooth boundary.

Bk1—5 to 10 inches; light olive brown (2.5Y 5/6) silty clay; moderate medium subangular blocky structure; firm; common fine roots; common fine and medium soft masses and nodules of calcium carbonate; common coarse faint olive brown (2.5Y 4/4) masses of iron accumulation; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk2—10 to 23 inches; light olive brown (2.5Y 5/6) silty clay; moderate medium subangular blocky structure; firm; common fine roots; few fragments of soft chalk; common fine and medium soft masses and nodules of calcium carbonate; many coarse faint olive brown (2.5Y 4/4) masses of iron accumulation; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk3—23 to 31 inches; light yellowish brown (2.5Y 6/4) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common fragments of soft chalk; common fine and medium soft masses and nodules of calcium carbonate; common medium distinct olive yellow (2.5Y 6/6) masses of iron accumulation; strongly effervescent; moderately alkaline; abrupt wavy boundary.

Cr—31 to 65 inches; level-bedded soft limestone (chalk); strong medium and thick platy rock structure; very firm; few fine roots in fractures; violently effervescent; moderately alkaline.

The thickness of the solum and depth to soft limestone (chalk) ranges from 20 to 40 inches. Reaction ranges from neutral to moderately alkaline in the surface layer and is slightly alkaline or moderately alkaline in the subsoil.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2.

The Bk horizon has hue of 2.5Y or 5Y, value of 4 to 7, and chroma of 3 to 6. It has few or common redox accumulations in shades of brown and olive. It has common or many nodules and soft masses of calcium carbonate. Most pedons have fragments of soft limestone (chalk). The content of these fragments ranges from 2 to 15 percent, by volume, and generally increases with increasing depth. Texture is silty clay loam, silty clay, or clay.

The Cr horizon is level-bedded, soft limestone (chalk). It restricts the growth of plant roots, but it can be cut with hand tools and is rippable by mechanized equipment.

Tuscumbia Series

The Tuscumbia series consists of very deep, poorly drained soils in low positions on flood plains of the Blackland Prairie. These soils formed in clayey alluvium. Slopes range from 0 to 1 percent.

Soils of the Tuscumbia series are fine, mixed, active, nonacid, thermic Vertic Epiaquepts.

Tuscumbia soils are commonly associated on the landscape with Sucarnoochee soils. Sucarnoochee soils are in slightly higher, more convex positions on flood plains. They are somewhat poorly drained.

Typical pedon of Tuscumbia clay loam, 0 to 1 percent slopes, frequently flooded, about 4 miles south of Demopolis, 2,100 feet west and 2,500 feet south of the northeast corner of sec. 18, T. 17 N., R. 3 E.

Ap—0 to 7 inches; very dark gray (10YR 3/1) clay loam; moderate medium granular structure; friable; many fine and medium roots; slightly acid; clear smooth boundary.

Bg1—7 to 21 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; many medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; few fine soft black masses (iron and manganese oxides); slightly alkaline; clear smooth boundary.

Bssg1—21 to 41 inches; gray (2.5Y 5/1) silty clay; moderate medium subangular blocky structure; firm; few fine roots; few large intersecting slickensides that have distinct polished and grooved surfaces; many medium prominent brownish yellow (10YR 6/6) masses of iron accumulation; few fine soft black masses (iron and manganese oxides); moderately alkaline; clear smooth boundary.

Bssg2—41 to 65 inches; dark gray (10YR 4/1) clay; moderate coarse angular blocky structure; firm; few large intersecting slickensides that have distinct polished and grooved surfaces; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation; moderately alkaline.

The solum is more than 50 inches thick. Reaction ranges from slightly acid to moderately alkaline throughout the profile.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2.

The Bg and Bssg horizons have hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. They have few to many redox accumulations in shades of brown and yellow. Texture is silty clay loam, silty clay, or clay.

Una Series

The Una series consists of very deep, poorly drained soils in depressional areas on the flood plain of the Tombigbee River. These soils formed in acid, clayey alluvium. Una soils are subject to frequent flooding and ponding for long periods in winter and spring during most years. Slopes range from 0 to 1 percent.

Soils of the Una series are fine, mixed, active, acid, thermic Typic Epiaquepts.

Una soils are commonly associated on the landscape with Bigbee, Mooreville, Riverview, and Urbo soils. Bigbee, Mooreville, and Riverview soils are in higher, more convex positions on flood plains than the Una soils. Bigbee soils are sandy throughout the profile. Mooreville and Riverview soils are fine-loamy. Urbo soils are in slightly higher positions than the Una soils and are somewhat poorly drained.

Typical pedon of Una silty clay, ponded, about 3 miles southwest of Pinhook, 600 feet south and 1,800 feet west of the northeast corner of sec. 32, T. 16 N., R. 2 E.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silty clay; weak medium subangular blocky structure; firm; many fine roots; common coarse prominent strong brown (7.5YR 4/6) masses of iron accumulation on faces of peds; few fine black concretions (iron and manganese oxides); very strongly acid; clear smooth boundary.

Bg1—4 to 26 inches; gray (10YR 6/1) clay; weak medium subangular blocky structure; many fine roots; common medium prominent strong brown

(7.5YR 4/6) masses of iron accumulation on faces of peds; common fine black concretions and stains (iron and manganese oxides); very strongly acid; clear smooth boundary.

Bg2—26 to 42 inches; gray (10YR 5/1) clay; moderate medium subangular blocky structure; firm; common fine roots; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation on faces of peds; common fine black concretions and stains (iron and manganese oxides); strongly acid; clear smooth boundary.

Bg3—42 to 60 inches; gray (2.5Y 6/1) clay; weak coarse subangular blocky structure; firm; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation on faces of peds; common fine black concretions and stains (iron and manganese oxides); strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2.

The Bg horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown and yellow. The texture is silty clay loam, silty clay, or clay.

Urbo Series

The Urbo series consists of very deep, somewhat poorly drained soils on the flood plain of the Tombigbee River. These soils formed in clayey alluvium. Urbo soils are subject to frequent flooding for brief periods in winter and spring in most years. Slopes range from 0 to 1 percent.

Soils of the Urbo series are fine, mixed, active, acid, thermic Vertic Epiaquepts.

Urbo soils are commonly associated on the landscape with Cahaba, Chrysler, Mooreville, Riverview, and Una soils. Cahaba and Chrysler soils are on adjacent low terraces. The well drained Cahaba soils are fine-loamy. Chrysler soils have a reddish argillic horizon. Mooreville and Riverview soils are in slightly higher positions than the Urbo soils. They are fine-loamy. Una soils are in slightly lower, more concave landscape positions than the Urbo soils and are poorly drained.

Typical pedon of Urbo silty clay loam, in an area of Urbo-Mooreville-Una complex, gently undulating, frequently flooded; about 3 miles west of Myrtlewood, 2,200 feet west and 1,200 feet north of the southeast corner of sec. 29, T. 15 N., R. 1 E.

A—0 to 8 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

Bw—8 to 15 inches; brown (10YR 5/3) clay; weak medium subangular blocky structure; firm; many fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and common medium distinct light gray (10YR 7/1) iron depletions on faces of peds; strongly acid; clear smooth boundary.

Bg—15 to 32 inches; gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; few fine roots; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; common soft black masses (iron and manganese oxides); very strongly acid; clear smooth boundary.

Bssg1—32 to 47 inches; gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; few large intersecting slickensides that have faint polished and slightly grooved surfaces; common coarse prominent strong brown (7.5YR 5/6) and few medium distinct yellowish brown (10YR 5/4) masses of iron accumulation; common soft black masses (iron and manganese oxides); very strongly acid; gradual smooth boundary.

Bssg2—47 to 65 inches; light gray (10YR 7/1) clay; weak coarse angular blocky structure; firm; common large intersecting slickensides that have distinct polished and slightly grooved surfaces; common medium prominent strong brown (7.5YR 5/6) and few fine prominent red (5YR 5/6) masses of iron accumulation; many soft black masses (iron and manganese oxides); very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the profile, except in the surface layer in areas where lime has been added.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The Bw horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4. It has few to many redox accumulations in shades of brown and redox depletions in shades of gray. The texture is silty clay loam, clay loam, silty clay, or clay.

The Bg and Bssg horizons have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. They have common or many redox accumulations in shades of brown and yellow. The texture is silty clay loam, clay loam, silty clay, or clay.

Vaiden Series

The Vaiden series consists of very deep, somewhat poorly drained soils on uplands of the Blackland Prairie. They formed in acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk). Slopes range from 0 to 1 percent.

Soils of the Vaiden series are very-fine, smectitic, thermic Aquic Dystruderts.

Vaiden soils are commonly associated on the landscape with Faunsdale, Oktibbeha, Sucarnoochee, and Sumter soils. Faunsdale and Sumter soils are in lower positions on the landscape than the Vaiden soils. Faunsdale soils are alkaline throughout the profile. Sumter soils are moderately deep over bedrock and are alkaline throughout the profile. Oktibbeha soils are in slightly higher, more convex positions than the Vaiden soils. Oktibbeha soils have a reddish argillic horizon. Sucarnoochee soils are on adjacent flood plains and are alkaline throughout the profile.

Typical pedon of Vaiden silty clay, 0 to 1 percent slopes, about 0.6 mile south of Demopolis, 1,000 feet east and 2,500 feet south of the northwest corner of sec. 32, T. 18 N., R. 3 E.

Ap—0 to 4 inches; dark brown (10YR 3/3) clay; moderate coarse subangular blocky structure; firm; many fine and medium roots; slightly acid; abrupt smooth boundary.

Bt—4 to 10 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few medium distinct gray (10YR 6/1) iron depletions and common medium prominent red (5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss1—10 to 24 inches; yellowish brown (10YR 5/4) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; common large intersecting slickensides that have slightly grooved surfaces; common fine and medium prominent red (2.5YR 4/6) masses of iron accumulation and common fine and medium distinct gray (10YR 6/1) iron depletions; very strongly acid; clear wavy boundary.

Btss2—24 to 38 inches; light olive brown (2.5Y 5/6) clay; weak coarse prismatic structure parting to strong fine angular blocky; firm; common fine and medium roots; common large intersecting slickensides that have prominent polished and grooved surfaces; many fine and medium distinct light brownish gray (2.5Y 6/2) iron depletions within the matrix; few fine prominent red (2.5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Bkss1—38 to 55 inches; yellowish brown (10YR 5/6) clay; weak coarse prismatic structure parting to strong fine angular blocky; firm; few fine roots; common large intersecting slickensides that have prominent polished and grooved surfaces; few soft masses of calcium carbonate; many medium distinct gray (5Y 5/1) iron depletions on faces of slickensides; common coarse distinct gray (2.5Y 5/1) iron depletions within the matrix; few fine black stains on faces of peds (iron and manganese oxides); slightly alkaline; clear wavy boundary.

Bkss2—55 to 65 inches; clay that is light olive brown (2.5Y 5/6) in the interior and is gray (5Y 5/1) on the exterior; weak very coarse angular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots; common large intersecting slickensides that have prominent polished and grooved surfaces; many medium distinct gray (5Y 5/1) iron depletions on faces of slickensides; common medium distinct brownish yellow (10YR 6/8) masses of iron accumulation within the matrix; common fine soft black masses (iron and manganese oxides); common medium and coarse soft masses of calcium carbonate; slightly effervescent; slightly alkaline; clear wavy boundary.

Bkss3—65 to 83 inches; yellowish brown (10YR 5/6) clay; weak very coarse angular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots; common large intersecting slickensides that have prominent polished and grooved surfaces; many medium distinct gray (5Y 5/1) iron depletions on faces of slickensides; common coarse distinct grayish brown (2.5Y 5/2) iron depletions within the matrix; common fine soft black masses (iron and manganese oxides); few medium and coarse soft masses of calcium carbonate; violently effervescent; moderately alkaline; abrupt irregular boundary.

2Cr—83 to 95 inches; level-bedded, soft limestone (chalk); weak thick platy rock structure; very firm; violently effervescent; moderately alkaline.

The depth to horizons that have secondary carbonates ranges from 36 to 80 inches. The depth to soft limestone (chalk) is more than 60 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. Reaction is very strongly acid or strongly acid, except in areas where lime has been applied.

The Btss horizon, or the Bt horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 8. It has common or many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. Some pedons do not have a dominant matrix color and are multicolored in shades of brown, gray, red, and yellow. Texture is clay. Reaction is very strongly acid or strongly acid.

The Bkss horizon, if it occurs, has hue of 10YR, 2.5Y, or 5Y, and has value of 4 to 6. The chroma ranges from 4 to 6 in ped interiors and is 1 or 2 on the exterior of peds or on faces of slickensides. Some pedons do not have a dominant matrix color and are multicolored in shades of gray, brown, and olive. This horizon has few to many redox depletions in shades of gray and redox accumulations in shades of brown and olive. Texture is clay or silty clay. This horizon has few to many soft masses and nodules or concretions of calcium carbonate. Some pedons have few or common soft masses or nodules of iron and manganese. Reaction ranges from neutral to moderately alkaline.

The 2C horizon, if it occurs, is highly weathered limestone (chalk) or alkaline clay. It is massive or has platy rock structure. Some pedons have a 2Cr horizon below a depth of 60 inches that is weathered limestone (chalk). It can be dug with difficulty with hand tools and is rippable by mechanized equipment.

Wadley Series

The Wadley series consists of very deep, somewhat excessively drained soils on side slopes of the uplands. These soils formed in sandy and loamy sediments. Slopes range from 5 to 30 percent.

Soils of the Wadley series are loamy, siliceous, subactive, thermic Grossarenic Paleudults.

Wadley soils are commonly associated on the landscape with Boykin, Luverne, and Smithdale soils. All of these soils are in landscape positions similar to those of the Wadley soils. Boykin soils have a sandy epipedon that is 20 to 40 inches thick. Luverne soils have a clayey argillic horizon and do not have a thick sandy epipedon. Smithdale soils do not have a thick sandy epipedon.

Typical pedon of Wadley loamy fine sand, 5 to 15 percent slopes, about 3 miles south of Shiloh, 800 feet east and 1,650 feet north of the southwest corner of sec. 18, T. 13 N., R. 4 E.

A—0 to 9 inches; brown (10YR 4/3) loamy fine sand; single grained; loose; common fine and medium roots; strongly acid; clear smooth boundary.

E1—9 to 24 inches; yellowish brown (10YR 5/8) loamy fine sand; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

E2—24 to 57 inches; brownish yellow (10YR 6/8) loamy fine sand; single grained; loose; few fine roots; few fine spots of yellowish red (5YR 5/8) sandy loam; very strongly acid; abrupt wavy boundary.

Bt—57 to 80 inches; yellowish red (5YR 5/8) sandy loam; weak coarse subangular blocky structure; very friable; few faint clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 80 inches. The combined thickness of the A and E horizons ranges from 40 to 80 inches. Reaction is very strongly acid or strongly acid throughout the profile, except for the surface and subsurface layers in areas where lime has been added.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 8, and chroma of 3 to 8. Texture is loamy sand or loamy fine sand.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 4 to 8. Texture is sandy loam, fine sandy loam, or sandy clay loam.

Watsonia Series

The Watsonia series consists of shallow, well drained soils on ridgetops and side slopes of the uplands in the Blackland Prairie. They formed in clayey sediments and the underlying soft limestone (chalk). Slopes range from 1 to 8 percent.

Soils of the Watsonia series are very-fine, smectitic, thermic Leptic Hapluderts.

Watsonia soils are commonly associated on the landscape with Demopolis, Oktibbeha, and Sumter soils. All of these soils are in landscape positions similar to those of the Watsonia soils. Demopolis soils are loamy and are alkaline throughout the profile. Sumter soils are moderately deep and are alkaline throughout the profile. Oktibbeha soils are very deep over bedrock.

Typical pedon of Watsonia clay, in an area of Sumter-Watsonia complex, 1 to 3 percent slopes; about 2 miles southwest of Faunsdale, 1,200 feet west and 1,500 feet south of the northeast corner of sec. 13, T. 17 N., R. 4 E.

Ap—0 to 3 inches; dark brown (10YR 4/3) clay; weak coarse subangular blocky structure; firm; common fine roots; moderately acid; abrupt smooth boundary.

Bss1—3 to 9 inches; yellowish red (5YR 5/6) clay; weak coarse angular blocky structure parting to moderate medium angular blocky; very firm; few fine roots flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; few medium distinct red (2.5YR 4/6) masses of iron accumulation; moderately acid; clear smooth boundary.

Bss2—9 to 17 inches; yellowish brown (10YR 5/8) clay; moderate coarse angular blocky structure; very firm; few fine roots flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine soft black masses (iron and manganese oxides); few fine prominent red (2.5YR 4/6) and common fine prominent yellowish red (5YR 5/6) masses of iron accumulation; few soft masses of calcium carbonate at the contact with chalk; slightly acid; abrupt wavy boundary.

2Cr—17 to 80 inches; light gray (5Y 7/2) soft limestone (chalk); strong medium and thick platy rock structure; very firm; violently effervescent; moderately alkaline.

The thickness of the soil over soft limestone (chalk) ranges from 10 to 20 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. Reaction ranges from strongly acid to slightly acid. Texture is clay.

The upper part of the Bss horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Reaction ranges from very strongly acid to slightly acid. Texture is silty clay or clay.

The lower part of the Bss horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. Some pedons have few or common redox accumulations in shades of red, olive, or brown. Reaction ranges from slightly acid to moderately alkaline. Texture is silty clay or clay.

The 2Cr horizon is level-bedded, soft limestone (chalk). It can be cut with hand tools and is rippable by light machinery.

Wilcox Series

The Wilcox series consists of deep, somewhat poorly drained soils on broad ridgetops and on side slopes of the uplands. These soils formed in clayey sediments and the underlying shale. Slopes range from 1 to 15 percent.

Soils of the Wilcox series are very-fine, smectitic, thermic Chromic Dystruderts.

Wilcox soils are commonly associated on the landscape with Consul and Houlka soils. Consul soils are on smooth, nearly level ridgetops. They are grayish throughout the profile. Houlka soils are on flood plains and are subject to frequent flooding.

Typical pedon of Wilcox clay, 1 to 5 percent slopes, about 4 miles southwest of Linden, 50 feet west and 400 feet south of the northeast corner of sec. 14, T. 15 N., R. 2 E.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) clay; moderate fine subangular blocky structure; firm; many fine and medium roots; very strongly acid; abrupt smooth boundary.

Btss1—4 to 14 inches; yellowish red (5YR 5/8) clay; weak coarse angular blocky structure parting to strong fine and medium angular blocky; very firm; few fine and medium roots; few faint clay films in pores; few fine and medium nodules of ironstone; few large intersecting slickensides that have distinct polished and grooved surfaces; many fine and medium distinct light gray (2.5Y 7/2) iron depletions on faces of peds and within the matrix; very strongly acid; clear wavy boundary.

Btss2—14 to 35 inches; 40 percent red (2.5YR 4/8), 30 percent light gray (2.5Y 7/2), and 30 percent brownish yellow (10YR 6/6) clay; moderate coarse angular blocky structure parting to strong medium angular blocky; very firm; few fine and medium roots; few fine nodules of ironstone; common large intersecting slickensides that have prominent polished and grooved surfaces; areas of red and brownish yellow are masses of iron accumulation and areas of light gray are iron depletions; very strongly acid; clear wavy boundary.

Bssg—35 to 53 inches; light gray (2.5Y 7/2) clay; weak very coarse angular blocky structure parting to strong fine and medium angular blocky; very firm; few fine roots flattened on faces of peds; common large intersecting slickensides that have prominent polished and grooved surfaces; few medium distinct brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/8) masses of iron accumulation on faces of peds; the light gray colors are relic redoximorphic features; very strongly acid; clear irregular boundary.

Cr—53 to 65 inches; light olive brown (2.5Y 5/4) shale; strong thick platy rock structure; very firm; very strongly acid.

The thickness of the solum and the depth to shale bedrock ranges from 40 to 60 inches.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3. Reaction ranges from extremely acid to strongly acid, except in areas that have been limed.

The Btss horizon has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, red, and gray. It has few to many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red range. Texture is clay. Reaction is extremely acid or very strongly acid.

The Bssg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has common or many redox accumulations in shades of red, yellow, or brown. Some pedons have a Bss horizon that does not have a dominant matrix color and is multicolored in shades of brown, gray, and red. Texture is clay. Reaction commonly ranges from extremely acid to strongly acid but can range to moderately acid in some pedons.

The Cr horizon is shale or clayey shale. It has platy or conchoidal rock structure and restricts the growth of roots. It can be cut with hand tools and is rippable by light machinery.

Yonges Series

The Yonges series consists of very deep, poorly drained soils on flood plains. These soils formed in loamy sediments. Slopes range from 0 to 1 percent.

Soils of the Yonges series are fine-loamy, mixed, active, thermic Typic Endoaqualfs.

Yonges soils are commonly associated on the landscape with Bonneau, Harleston, Minter, and Steens soils. Bonneau, Harleston, and Steens soils are in higher, more convex landscape positions than the Yonges soils. Bonneau soils have a thick sandy epipedon. Harleston soils are moderately well drained and are coarse-loamy. Steens soils are somewhat poorly drained. Minter soils are in landscape positions similar to those of the Yonges soils. They have a clayey argillic horizon.

Typical pedon of Yonges fine sandy loam, 0 to 1 percent slopes, occasionally flooded, about 3 miles northeast of Providence, 400 feet north and 2,600 feet east of the southwest corner of sec. 5, T. 16 N., R. 4 E.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine distinct strong brown (7.5YR 5/8) masses of iron accumulation in pores; strongly acid; abrupt smooth boundary.

Btg1—7 to 30 inches; light gray (10YR 7/2) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; few fine soft black masses (iron and manganese oxides); few medium distinct yellowish brown (10YR 6/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Btg2—30 to 54 inches; light gray (10YR 7/2) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; few faint clay films on faces of peds; few fine soft black masses (iron and manganese oxides); common medium distinct brownish yellow (10YR 6/6) and few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid; clear smooth boundary.

Cg—54 to 65 inches; light gray (10YR 7/2) sandy loam; massive; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly alkaline.

The thickness of the solum ranges from 40 to 80 inches.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2. It has few to many redox accumulations in shades of yellow and brown. Reaction ranges from very strongly acid to moderately acid, except in areas where lime has been added.

The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many redox accumulations in shades of yellow and brown. Texture is fine sandy loam or loamy fine sand. Reaction ranges from very strongly acid to moderately acid.

The Btg horizon has hue of 10YR to 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has common or many redox accumulations in shades of brown, yellow, or red. Texture is sandy clay loam or clay loam. Reaction ranges from strongly acid to slightly acid.

The Cg horizon, if it occurs, has a range in colors similar to that of the Btg horizon. Texture ranges from sandy to clayey. Reaction ranges from slightly acid to moderately alkaline.

Formation of the Soils

In this section, the factors of soil formation are related to the soils in Marengo County, and the processes of horizon differentiation are explained.

Factors of Soil Formation

Soil is a natural, three-dimensional body on the earth's surface that supports plants. Soil 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. The relative importance of each of these factors differs from place to place; in some areas, one factor is more important, and 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 to a natural body with 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

The soils of Marengo County formed mainly in three kinds of parent material—loamy and clayey marine sediment that has undergone considerable weathering in place, water-deposited material on stream terraces and flood plains, and materials weathered from soft limestone (chalk). Luverne, Searcy, Smithdale, and Subran soils formed in weathered marine sediments. Bama, Cahaba, Chrysler, Iuka, Izagora, Kinston, Mantachie, and Sucarnoochee soils formed in the water-deposited material on stream terraces and flood plains. Demopolis, Faunsdale, Oktibbeha, Sumter, Vaiden, and Watsonia soils formed in materials weathered from soft limestone (chalk).

Climate

The climate of Marengo 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 among the soils. Rainfall averages 55 inches a year.

This mild, humid climate favors rapid decomposition of organic matter and hastens chemical reaction in the soil. The plentiful rainfall leaches large amounts of soluble bases and carries the less soluble fine particles downward, resulting in acid and sandy soils that are low in natural fertility. The large amount of moisture and the warm temperature favor the growth of bacteria and fungi and speed the decomposition of organic matter, resulting in soils that are low in organic matter content.

Relief

Relief influences the formation of soil through its effect on drainage, runoff, and erosion. In Marengo County, the topography ranges from nearly level to steep. The elevation ranges from about 45 to about 400 feet above sea level. Large flat areas and depressions generally are poorly drained, and accumulated water, received mainly as runoff from adjacent areas, retards soil formation. As slope increases, the hazard of erosion becomes greater, and runoff increases, but less water soaks into the soil and leaching decreases. In places, erosion nearly keeps pace with soil formation; therefore, soils on steep slopes are generally thin and weakly developed.

The aspect of slope affects the microclimate. Soils that have slopes facing the south or southwest warm up somewhat earlier in spring and generally reach a higher temperature each day than those slopes facing north. As a result, soils that have south- or southwest-facing slopes have accelerated chemical weathering. Soils that have north-facing slopes retain moisture longer because they are shaded for longer periods and have a lower temperature. In Marengo County, differences caused by the direction of slope are slight and of minor importance in soil formation.

Plants and Animals

Living organisms greatly influence the processes of soil formation and the characteristics of the soils. Trees, grasses, earthworms, rodents, fungi, bacteria, and other forms of plant and animal life are affected by the other soil-forming factors. Animal activity is largely confined to the surface layer of the soil. The soil is continually mixed by their activity, which improves water infiltration. Plant roots create channels through which air and water move more rapidly, thereby improving soil structure and increasing the rate of chemical reactions in the soil.

Microorganisms help to decompose organic matter, which releases plant nutrients and chemicals into the soil. These nutrients are either used by the plants or are leached from the soil. Human activities that influence the plant and animal populations in the soil affect the future rate of soil formation.

The native vegetation in the uplands of Marengo County consisted of coniferous and deciduous trees as dominant overstory. The understory species were holly, panicums, bluestems, American beautyberry, indiangrass, longleaf uniola, and flowering dogwood. These species represent only a very limited variety that once grew in this county and can be used as a guide to plants presently in the county.

The species distribution of fauna also reflect these plant communities. Animals have an impact on the soil properties of a particular area. For example, worms, moles, armadillo, and gophers can improve aeration in a compacted soil. Microbes that thrive in a particular plant community will react to various soil conditions and consequently influence the soil profile by providing decayed organic matter and nitrogen to the soil matrix.

Time

If all other factors of soil formation are equal, the degree of soil formation is in direct proportion to time. If 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.

Geologically, the soils in Marengo County are relatively young. The youngest soils are the alluvial soils in active flood plains of streams and rivers. These soils receive deposits of sediment and are undergoing a cumulative soil-forming process. In most cases, these young soils have very weakly defined horizons, mainly because the soil-forming processes have only been active for a short time. The Bibb, Iuka, Houlka, Mantachie, Riverview, and Sucarnoochee soils are examples of young soils.

Soils on terraces of the Tombigbee River are older than soils on flood plains but are still relatively young. They formed in material deposited by the river, but the river channels are now deeper and the overflow no longer reaches these soils. Many of these soils have relatively strong horizon development. The Bama, Cahaba, Chrysler, Izagora, Lucedale, and Savannah soils are examples of soils on stream terraces of varying age.

The oldest soils in the county are on uplands and formed in marine sediment that has undergone considerable weathering. The Luverne, Smithdale, Subran, and Wadley soils are examples.

Processes of Horizon Differentiation

The main processes involved in the formation of soil horizons are accumulation of organic matter, leaching of calcium carbonate and bases, reduction and transfer of iron, and formation and translocation of silicate clay minerals. 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. The E horizon, usually called the subsurface layer, is the horizon of maximum loss of soluble or suspended material. Bonneau and Boykin soils have both an A horizon and an E horizon. Other soils such as Mantachie soils, have an A horizon but do not have an E horizon. Organic matter has accumulated in the surface layer of all soils in Marengo County to form an A horizon. The content of organic matter varies in different soils because of differences in relief, wetness, and natural fertility.

The B horizon, usually called the subsoil, is immediately below the A or E horizon. It is the horizon of maximum accumulation of dissolved or suspended material, such as iron or clay. The B horizon has not yet developed in very young soils such as Iuka soils.

The C horizon is the substratum. It has been affected very little by the soil forming processes, but it may be 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 color indicates the reduction and loss of iron and manganese. The horizons of some soils, such as in the Subran soils, have reddish mottles and dark concretions, which indicate a segregation of iron and manganese.

Leaching of carbonates and bases has occurred in most of the soils of the county. This process contributes to the development of distinct horizons and to the naturally low fertility and acid reaction of most soils in the Coastal Plain. Some soils of the Blackland Prairie, such as Demopolis, Faunsdale, Sucarnoochee, and Sumter soils, have developed in materials weathered from soft limestone (chalk). They are high to medium in natural fertility and are alkaline throughout the profile.

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, such as Bama and Lucedale soils, have a subsoil that is uniformly bright in color. Soils that formed under poor drainage conditions, such as Kinston, Minter, and Yonges soils, have grayish color. Soils that formed where drainage is intermediate, have a subsoil that is mottled in shades of gray and brown. Freest, Izagora, Lenoir, and Sucarnoochee soils are examples. The grayish color persists even after artificial drainage is provided. The dark grayish brown colors in the upper part of the Sucarnoochee soils is assumed to be inherited from the color of the parent material.

In steep areas, the surface soil erodes. In low areas, or in depressions, soil materials often accumulate and add to the thickness of the surface soil. In some areas, the formation of soil materials and the rates of removal are in equilibrium with soil development. The eluviation of clay from the E horizon to the Bt horizon is also related to the degree of relief.

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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.

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

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes 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.

Bottom land. The normal flood plain of a stream, subject to flooding.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

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.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

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.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

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.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

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.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

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.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

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.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that 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.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration 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.

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:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

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.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

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 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 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.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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.

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.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Very gently sloping	1 to 3 percent
Gently sloping	0 to 5 percent
Moderately sloping	5 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

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	3 to 8 percent
Gently rolling	5 to 15 percent
Steep	15 to 25 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. 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.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

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.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Camden, Alabama)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	56.9	33.5	45.2	78	8	72	5.25	3.44	6.90	8	0.3
February	61.1	36.1	48.6	81	15	98	5.43	3.37	7.29	6	0.1
March	70.4	43.6	57.0	86	23	255	6.13	3.63	8.36	7	0.0
April	78.3	51.1	64.7	90	32	443	4.56	1.83	6.86	5	0.0
May	84.4	58.4	71.4	94	41	662	4.64	2.15	6.78	6	0.0
June	90.5	65.2	77.8	100	51	835	3.83	1.99	5.43	6	0.0
July	92.0	68.1	80.0	100	59	931	5.54	2.85	7.90	8	0.0
August	91.2	67.6	79.4	99	58	910	4.02	2.30	5.55	6	0.0
September	87.3	62.6	75.0	97	45	749	3.50	1.53	5.17	5	0.0
October	78.0	50.6	64.3	91	31	444	2.61	0.79	4.24	3	0.0
November	68.2	42.5	55.4	84	21	211	4.05	2.07	5.78	5	0.0
December	59.8	36.0	47.9	80	13	104	5.95	3.60	8.06	7	0.1
Yearly:	---	---	---	---	---	---	---	---	---	---	---
Average	76.5	51.3	63.9	---	---	---	---	---	---	---	---
Extreme	104	0	---	102	7	---	---	---	---	---	---
Total	---	---	---	---	---	5,714	55.50	45.36	62.29	72	0.4

* 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 Camden, Alabama)

Probability	Temperature		
	24 degrees F or lower	28 degrees F or lower	32 degrees F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 13	Mar. 31	Apr. 6
2 years in 10 later than--	Mar. 7	Mar. 23	Apr. 1
5 years in 10 later than--	Feb. 23	Mar. 7	Mar. 22
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 10	Oct. 30	Oct. 22
2 years in 10 earlier than--	Nov. 19	Nov. 6	Oct. 28
5 years in 10 earlier than--	Dec. 6	Nov. 20	Nov. 8

Table 3.--Growing Season

(Recorded in the period 1961-91 at Camden, Alabama)

Probability	Daily minimum temperature during growing season		
	Higher than 24 degrees F	Higher than 28 degrees F	Higher than 32 degrees F
	Days	Days	Days
9 years in 10	243	221	205
8 years in 10	258	233	214
5 years in 10	286	257	231
2 years in 10	314	281	248
1 year in 10	328	294	257

Table 4.--Suitability and Limitations of General Soil Map Units for Major Land Uses

Map unit	Extent of area	Cultivated crops	Pasture and hayland	Woodland	Urban uses
	Pct				
1. Urbo-Mooreville-Una	7	Poorly suited: wetness, flooding.	Poorly suited: wetness, flooding.	Suited: restricted use of equipment, seedling mortality.	Not suited: wetness, flooding.
2. Bama-Smithdale-Savannah	9	Well suited	Well suited	Well suited	Well suited.
3. Luverne-Halso	3	Suited: slope, low fertility hazard of erosion.	Well suited	Suited: restricted use of equipment, hazard of erosion.	Poorly suited: slope, shrink-swell potential, very slow and moderately slow permeability.
4. Vaiden-Sucarnoochee-Searcy	4	Suited: wetness, poor tilth, hazard of erosion, flooding.	Suited: wetness, flooding.	Suited: restricted use of equipment, seedling mortality.	Poorly suited: flooding, wetness, shrink-swell potential, very slow and slow permeability
5. Wilcox-Consul	13	Suited: wetness, poor tilth, hazard of erosion.	Suited: wetness.	Suited: restricted use of equipment, seedling mortality.	Poorly suited: wetness, shrink-swell potential, very slow permeability.
6. Oktibbeha-Luverne-Brantley	7	Poorly suited: slope, hazard of erosion, poor tilth.	Suited: slope, hazard of erosion.	Suited: restricted use of equipment, hazard of erosion, seedling mortality.	Poorly suited: slope, shrink-swell potential, very slow and moderately slow permeability.
7. Mooreville-Mantachie-Kinston	2	Poorly suited: wetness, flooding.	Poorly suited: wetness, flooding.	Suited: restricted use of equipment, seedling mortality.	Not suited: wetness, flooding.
8. Wadley-Boykin-Smithdale	5	Poorly suited: slope, low fertility, hazard of erosion.	Suited: slope, low fertility, droughtiness.	Suited: restricted use of equipment, hazard of erosion, seedling mortality.	Poorly suited: slope, droughtiness, hazard of erosion, seepage.

Table 4.--Suitability and Limitations of General Soil Map Units for Major Land Uses

Map unit	Extent of area	Cultivated crops	Pasture and hayland	Woodland	Urban uses
	Pct				
9. Sucarnoochee-Houlka-------	4	Poorly suited: wetness, flooding, poor tilth.	Suited: wetness, flooding.	Suited: restricted use of equipment, seedling mortality.	Not suited: wetness, flooding.
10. Sumter-Demopolis-Faunsdale---------------	11	Suited: poor tilth, depth to rock, hazard of ersion.	Suited: droughtiness, wetness.	Poorly suited: restricted use of equipment, seedling mortality.	Poorly suited: depth to rock, shrink-swell potential, very slow permeability.
11. Cahaba-Izagora-Chrysler--	9	Well suited-----	Well suited-----	Well suited---	Poorly suited: flooding, moderate to slow permeability.
12. Luverne-Smithdale-Boykin-	26	Poorly suited: slope, hazard of erosion, low fertility, droughtiness.	Suited: slope, low fertility, droughtiness.	Suited: restricted use of equipment, hazard of erosion, seedling mortality.	Poorly suited: slope, moderate and moderately slow permeability, hazard of erosion, seepage.

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
BaA	Bama fine sandy loam, 0 to 2 percent slopes	5,670	0.9
BaB	Bama fine sandy loam, 2 to 5 percent slopes	13,790	2.2
BbA	Bibb-Iuka complex, 0 to 1 percent slopes, frequently flooded	15,790	2.5
BgB	Bigbee loamy sand, 0 to 5 percent slopes, occasionally flooded	5,400	0.9
BnB	Bonneau loamy fine sand, 0 to 5 percent slopes	5,630	0.9
BoB	Boykin loamy fine sand, 0 to 5 percent slopes	4,960	0.8
BpE	Boykin-Wadley complex, 15 to 30 percent slopes	18,950	3.0
BrC	Brantley fine sandy loam, 5 to 8 percent slopes	2,840	0.5
BrD2	Brantley fine sandy loam, 8 to 15 percent slopes, eroded	7,920	1.3
BsF2	Brantley-Okeelala complex, 15 to 35 percent slopes, eroded	12,410	2.0
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded	7,020	1.1
CbA	Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded	5,980	1.0
CcB	Cahaba fine sandy loam, 2 to 5 percent slopes, rarely flooded	4,790	0.8
ChB	Chrysler-Lenoir complex, gently undulating, occasionally flooded	9,890	1.6
CoA	Consul clay, 0 to 2 percent slopes	15,960	2.5
DeD2	Demopolis silty clay loam, 3 to 8 percent slopes, eroded	14,620	2.3
DuD	Demopolis-Urban land complex, 0 to 8 percent slopes	1,830	0.3
FnB	Faunsdale clay loam, 1 to 3 percent slopes	8,980	1.4
FnC	Faunsdale clay loam, 3 to 5 percent slopes	5,260	0.8
FsB	Freest fine sandy loam, 1 to 3 percent slopes	2,900	0.5
GdE3	Gullied land-Demopolis complex, 2 to 12 percent slopes, severely eroded	240	*
HaB	Halso fine sandy loam, 2 to 5 percent slopes	4,380	0.7
HaD2	Halso fine sandy loam, 5 to 15 percent slopes, eroded	13,480	2.1
HbA	Harleston-Bigbee complex, gently undulating, rarely flooded	4,940	0.8
HoA	Houlka silty clay loam, 0 to 1 percent slopes, frequently flooded	24,740	3.9
IzA	Izagora sandy loam, 0 to 2 percent slopes, rarely flooded	15,000	2.4
KpC	Kipling silty clay loam, 1 to 5 percent slopes	7,560	1.2
KuC	Kipling-Urban land complex, 0 to 5 percent slopes	410	0.1
LaA	Lucedale fine sandy loam, 0 to 2 percent slopes	730	0.1
LvB	Luverne sandy loam, 2 to 5 percent slopes	12,380	2.0
LvD2	Luverne sandy loam, 5 to 15 percent slopes, eroded	34,790	5.5
MiA	Minter loam, 0 to 1 percent slopes, occasionally flooded	4,810	0.8
MKA	Mooreville, Mantachie, and Kinston soils, 0 to 1 percent slopes, frequently flooded	28,830	4.6
OkC	Oktibbeha clay loam, 1 to 5 percent slopes	17,100	2.7
OtD2	Oktibbeha clay, 5 to 8 percent slopes, eroded	6,590	1.0
Pt	Pits	340	0.1
Qu	Quarry	230	*
RvA	Riverview fine sandy loam, 0 to 2 percent slopes, occasionally flooded	8,250	1.3
SaA	Savannah fine sandy loam, 0 to 2 percent slopes	7,570	1.2
ScC2	Searcy fine sandy loam, 5 to 8 percent slopes, eroded	8,650	1.4
SdC	Smithdale loamy sand, 5 to 8 percent slopes	20,270	3.2
SdD	Smithdale loamy sand, 8 to 15 percent slopes	17,560	2.8
SmF	Smithdale-Boykin-Luverne complex, 15 to 45 percent slopes	50,930	8.1
SnA	Steens-Yonges-Harleston complex, 0 to 2 percent slopes	8,880	1.4
SrB	Subran loam, 2 to 5 percent slopes	1,380	0.2
StA	Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded	35,890	5.7
SuE2	Sumter silty clay loam, 5 to 12 percent slopes, eroded	8,980	1.4
SwB	Sumter-Watsonia complex, 1 to 3 percent slopes	4,480	0.7
SwC2	Sumter-Watsonia complex, 3 to 8 percent slopes, eroded	11,640	1.9
TsA	Tuscumbia clay loam, 0 to 1 percent slopes, frequently flooded	710	0.1
UnA	Una silty clay, ponded	4,370	0.7
Ur	Urban land	300	*
UuB	Urbo-Mooreville-Una complex, gently undulating, frequently flooded	26,720	4.2
VdA	Vaiden silty clay, 0 to 1 percent slopes	9,170	1.5
WdD	Wadley loamy fine sand, 5 to 15 percent slopes	10,520	1.7
WxB	Wilcox clay, 1 to 5 percent slopes	27,150	4.3
WxD2	Wilcox clay, 5 to 15 percent slopes, eroded	14,110	2.2
YoA	Yonges fine sandy loam, 0 to 1 percent slopes, occasionally flooded	1,420	0.2
	Areas of water less than 40 acres in size	2,260	0.4
	Areas of water more than 40 acres in size	720	0.1
	Total	629,070	100.0

* Less than 0.1 percent.

Table 6.--Land Capability and Yields per Acre of Crops

(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	Grain sorghum	Wheat
		Lbs	Bu	Bu	Bu	Bu
BaA: Bama	I	850	110	35	90	40
BaB: Bama	IIe	750	90	35	90	35
BbA: Bibb-Iuka	Vw	---	---	---	---	---
BgB: Bigbee	IIIs	---	---	---	---	---
BnB: Bonneau	IIs	700	80	30	70	30
BoB: Boykin	IIs	600	70	25	60	30
BpE: Boykin-Wadley	VIIe	---	---	---	---	---
BrC: Brantley	IVe	450	60	20	60	30
BrD2: Brantley	VIe	---	---	---	---	---
BsF2: Brantley-Okeelala	VIIe	---	---	---	---	---
CaA: Cahaba	I	800	100	40	100	40
CbA: Cahaba	IIw	800	100	40	100	40
CcB: Cahaba	IIe	750	85	30	80	35
ChB:		650	80	35	70	30
Chrysler	IIIw					
Lenoir	IVw					
CoA: Consul	IIIw	---	70	30	60	30
DeD2: Demopolis	VIe	---	---	---	---	---
DuD*: Demopolis-Urban land	---	---	---	---	---	---
FnB: Faunsdale	IIe	650	80	40	70	40
FnC: Faunsdale	IIIe	600	75	35	70	35

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Soil name and map symbol	Land capability	Cotton lint	Corn	Soybeans	Grain sorghum	Wheat
		Lbs	Bu	Bu	Bu	Bu
FsB-----Freest	IIe	800	110	40	110	40
GdE3-----		---	---	---	---	---
Gullied land-----	VIIIs					
Demopolis-----	VIs					
HaB-----Halso	IIIe	600	70	30	60	30
HaD2-----Halso	VIe	---	---	---	---	---
HbA-----		600	70	30	60	30
Harleston-----	IIw					
Bigbee-----	IIIs					
HoA-----Houlka	Vw	---	---	---	---	---
IzA-----Izagora	IIw	700	100	40	90	35
KpC-----Kipling	IIIe	550	60	25	60	30
KuC*-----Kipling-Urban land	---	---	---	---	---	---
LaA-----Lucedale	I	900	115	40	110	40
LvB-----Luverne	IIIe	600	70	30	80	30
LvD2-----Luverne	VIe	---	---	---	---	---
MiA-----Minter	IVw	---	---	30	80	---
MKA-----Mooreville, Mantachie, and Kinston	Vw	---	---	---	---	---
OkC-----Oktibbeha	IIIe	500	50	30	60	30
OtD2-----Oktibbeha	IVe	---	---	30	---	30
Pt*-----Pits	VIIIs	---	---	---	---	---
Qu*-----Quarry	VIIIs	---	---	---	---	---
RvA-----Riverview	IIw	800	125	40	110	45

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Soil name and map symbol	Land capability	Cotton lint	Corn	Soybeans	Grain sorghum	Wheat
		Lbs	Bu	Bu	Bu	Bu
SaA---------------------- Savannah	IIw	700	90	35	90	40
ScC2--------------------- Searcy	IVe	600	70	25	70	30
SdC---------------------- Smithdale	IIIe	600	70	30	70	30
SdD---------------------- Smithdale	IVe	400	55	25	60	25
SmF---------------------- Smithdale-Boykin-Luverne	VIIe	---	---	---	---	---
SnA----------------------		500	99	35	70	25
Steens-------------------	IIw					
Yonges-------------------	IIIw					
Harleston----------------	IIw					
SrB---------------------- Subran	IIe	600	85	35	80	30
StA---------------------- Sucarnoochee	IVw	---	100	35	80	---
SuE2--------------------- Sumter	VIe	---	---	---	---	---
SwB---------------------- Sumter-Watsonia	IIIe	---	---	25	60	---
SwC2--------------------- Sumter-Watsonia	IVe	---	---	20	60	---
TsA---------------------- Tuscumbia	Vw	---	---	---	---	---
UnA---------------------- Una	VIIw	---	---	---	---	---
Ur*---------------------- Urban land	VIIIs	---	---	---	---	---
UuB---------------------- Urbo-Mooreville-Una	Vw	---	---	---	---	---
VdA---------------------- Vaiden	IIIw	500	80	40	60	30
WdD---------------------- Wadley	VIs	---	---	---	---	---
WxB---------------------- Wilcox	IIIe	450	70	35	55	30
WxD2--------------------- Wilcox	VIe	---	---	---	---	---
YoA---------------------- Yonges	IVw	---	80	30	40	---

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 7.--Yields per Acre of Pasture and Hay

(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	Improved bermuda-grass	Bahiagrass	Tall fescue	Dallisgrass-clover	Cool season annuals	Improved bermuda-grass hay	Johnsongrass hay
	AUM*	AUM*	AUM*	AUM*	AUM*	Tons	Tons
BaA------------- Bama	10.0	10.0	---	---	5.0	6.0	---
BaB------------- Bama	9.5	9.5	---	---	5.0	---	---
BbA------------- Bibb-Iuka	---	---	---	---	---	---	---
BgB------------- Bigbee	7.0	7.5	---	---	---	3.5	---
BnB------------- Bonneau	8.5	8.0	---	---	4.5	4.5	---
BoB------------- Boykin	7.0	7.0	---	---	---	3.5	---
BpE------------- Boykin-Wadley	---	---	---	---	---	---	---
BrC------------- Brantley	8.0	8.0	6.0	4.5	4.0	4.0	---
BrD2------------ Brantley	6.5	6.5	5.5	4.0	4.0	---	---
BsF2------------ Brantley-Okeelala	---	---	---	---	---	---	---
CaA------------- Cahaba	10.0	8.5	---	---	5.0	6.0	---
CbA------------- Cahaba	10.0	8.5	---	---	5.0	6.0	---
CcB------------- Cahaba	9.5	8.0	---	---	5.0	6.0	---
ChB------------- Chrysler-Lenoir	8.0	---	---	7.5	---	4.5	---
CoA------------- Consul	---	---	6.0	5.5	---	---	---
DeD2------------ Demopolis	---	---	3.0	---	---	---	3.0
DuD**----------- Demopolis-Urban land	---	---	---	---	---	---	---
FnB------------- Faunsdale	---	---	9.0	---	---	---	5.0
FnC------------- Faunsdale	---	---	8.5	---	---	---	5.0

See footnote at end of table.

Table 7.--Yields per Acre of Pasture and Hay--Continued

Soil name and map symbol	Improved bermuda-grass	Bahiagrass	Tall fescue	Dallisgrass-clover	Cool season annuals	Improved bermuda-grass hay	Johnsongrass hay
	AUM*	AUM*	AUM*	AUM*	AUM*	Tons	Tons
FsB------------- Freest	9.0	9.0	7.0	8.0	4.5	4.5	---
GdE3------------ Gullied land-Demopolis	---	---	---	---	---	---	---
HaB------------- Halso	7.0	6.0	---	---	4.5	4.0	---
HaD2------------ Halso	6.0	5.0	---	---	---	---	---
HbA------------- Harleston-Bigbee	8.5	8.0	---	---	---	4.0	---
HoA------------- Houlka	---	---	6.5	6.0	---	---	4.5
IzA------------- Izagora	8.0	8.0	7.0	8.0	4.5	4.5	---
KpC------------- Kipling	---	---	6.5	7.0	---	---	5.0
KuC**----------- Kipling-Urban land	---	---	---	---	---	---	---
LaA------------- Lucedale	10.0	10.0	---	---	5.0	6.0	---
LvB------------- Luverne	9.5	8.5	---	---	4.5	4.5	---
LvD2------------ Luverne	8.0	7.0	---	---	4.0	4.0	---
MiA------------- Minter	---	---	6.5	6.0	---	---	---
MKA------------- Mooreville, Mantachie and Kinston	---	---	---	6.0	---	---	---
OkC------------- Oktibbeha	---	---	8.0	7.5	---	---	5.0
OtD2------------ Oktibbeha	---	---	6.5	5.0	---	---	4.0
Pt**------------ Pits	---	---	---	---	---	---	---
Qu**------------ Quarry	---	---	---	---	---	---	---

See footnote at end of table.

Table 7.--Yields per Acre of Pasture and Hay--Continued

Soil name and map symbol	Improved bermuda-grass	Bahiagrass	Tall fescue	Dallisgrass-clover	Cool season annuals	Improved bermuda-grass hay	Johnsongrass hay
	AUM*	AUM*	AUM*	AUM*	AUM*	Tons	Tons
RvA------------- Riverview	10.0	9.0	---	7.0	5.0	7.0	5.0
SaA------------- Savannah	8.0	8.0	---	---	4.5	4.0	---
ScC2------------ Searcy	8.0	8.0	6.0	4.5	4.0	4.0	---
SdC------------- Smithdale	9.0	8.0	---	---	5.0	5.0	---
SdD------------- Smithdale	8.5	7.5	---	---	4.5	4.5	---
SmF------------- Smithdale-Boykin-Luverne	---	---	---	---	---	---	---
SnA------------- Steens-Yonges-Harleston	---	---	---	7.5	---	---	---
SrB------------- Subran	9.5	9.0	6.5	---	5.0	---	---
StA------------- Sucarnoochee	---	---	8.5	8.0	---	---	4.5
SuE2------------ Sumter	---	---	3.0	---	---	---	---
SwB------------- Sumter-Watsonia	---	---	5.0	---	---	---	4.0
SwC2------------ Sumter-Watsonia	---	---	5.0	---	---	---	4.0
TsA------------- Tuscumbia	---	---	5.5	5.0	---	---	---
UnA------------- Una	---	---	---	---	---	---	---
Ur**------------ Urban land	---	---	---	---	---	---	---
UuB------------- Urbo-Mooreville-Una	---	---	5.5	5.0	---	---	---
VdA------------- Vaiden	---	---	8.5	7.0	---	---	5.0
WdD------------- Wadley	4.5	4.0	---	---	---	---	---
WxB------------- Wilcox	---	---	8.5	7.0	---	---	5.0

See footnote at end of table.

Table 7.--Yields per Acre of Pasture and Hay--Continued

Soil name and map symbol	Improved bermuda-grass	Bahiagrass	Tall fescue	Dallisgrass-clover	Cool season annuals	Improved bermuda-grass hay	Johnsongrass hay
	AUM*	AUM*	AUM*	AUM*	AUM*	Tons	Tons
WxD2------------ Wilcox	---	---	6.0	---	---	---	---
YoA------------- Yonges	---	---	6.5	6.0	---	---	---

* 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.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 8.--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: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
BaA, BaB-------- Bama	9A	Slight	Slight	Slight	Moderate	Loblolly pine------- Shortleaf pine------ Longleaf pine-------	90 80 80	2.2 --- ---	Loblolly pine, longleaf pine.
BbA**:									
Bibb-----------	8W	Slight	Severe	Severe	Severe	Water oak----------- Loblolly pine------- Sweetgum------------	90 100 95	1.0 --- ---	Loblolly pine, sweetgum.
Iuka-----------	11W	Slight	Moderate	Moderate	Severe	Loblolly pine------- Sweetgum------------ Eastern cottonwood-- Water oak-----------	100 100 105 100	2.7 --- --- ---	Loblolly pine, eastern cottonwood, yellow-poplar.
BgB------------ Bigbee	7S	Slight	Slight	Moderate	Slight	Loblolly pine-------	75	1.4	Loblolly pine.
BnB------------ Bonneau	9S	Slight	Moderate	Moderate	Moderate	Loblolly pine------- Longleaf pine------- White oak----------- Hickory-------------	90 75 --- ---	2.2 --- --- ---	Loblolly pine, longleaf pine.
BoB------------ Boykin	8S	Slight	Moderate	Moderate	Moderate	Loblolly pine------- Longleaf pine-------	85 70	2.1 ---	Loblolly pine, longleaf pine.
BpE**:									
Boykin---------	8R	Moderate	Moderate	Moderate	Moderate	Loblolly pine------- Longleaf pine-------	85 70	2.1 ---	Loblolly pine, longleaf pine.
Wadley---------	8R	Moderate	Moderate	Moderate	Moderate	Loblolly pine------- Longleaf pine-------	80 70	1.8 ---	Loblolly pine, longleaf pine.
BrC, BrD2------- Brantley	9C	Slight	Moderate	Slight	Moderate	Loblolly pine------- Shortleaf pine------	90 70	2.2 ---	Loblolly pine.
BsF2**:									
Brantley-------	8R	Moderate	Moderate	Slight	Moderate	Loblolly pine------- Shortleaf pine------	85 70	2.1 ---	Loblolly pine.
Okeelala-------	8R	Moderate	Moderate	Slight	Slight	Loblolly pine------- Longleaf pine-------	90 70	2.2 ---	Loblolly pine, longleaf pine.
CaA, CbA, CcB--- Cahaba	10A	Slight	Slight	Slight	Moderate	Loblolly pine------- Shortleaf pine------ Yellow-poplar------- Sweetgum------------ Southern red oak---- Water oak-----------	95 70 --- 90 --- ---	2.5 --- --- --- --- ---	Loblolly pine, sweetgum, water oak.

See footnotes at end of table.

Table 8.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
ChB**:									
Chrysler	11W	Slight	Moderate	Slight	Severe	Loblolly pine	100	2.7	Loblolly pine, sweetgum, water oak, yellow-poplar, American sycamore.
						Shortleaf pine	90	---	
						Sweetgum	90	---	
						Water oak	100	---	
						Yellow-poplar	110	---	
						American sycamore	110	---	
Lenoir	9W	Slight	Moderate	Slight	Severe	Loblolly pine	90	2.2	Loblolly pine, sweetgum.
						Water oak	---	---	
						Sweetgum	---	---	
						Southern red oak	---	---	
						White oak	---	---	
						Swamp chestnut oak	---	---	
						Yellow-poplar	---	---	
						Red maple	---	---	
						Blackgum	---	---	
CoA: Consul	9C	Slight	Moderate	Moderate	Severe	Loblolly pine	90	2.2	Loblolly pine.
						Sweetgum	80	---	
DeD2: Demopolis	3D	Slight	Slight	Severe	Moderate	Eastern redcedar	40	*	Eastern redcedar.
DuD**:									
Demopolis.									
Urban land.									
FnB, FnC: Faunsdale	3C	Slight	Moderate	Moderate	Moderate	Eastern redcedar	40	*	Eastern redcedar.
FsB: Freest	11A	Slight	Moderate	Slight	Moderate	Loblolly pine	100	2.7	Loblolly pine.
						Shortleaf pine	80	---	
GdE3**:									
Gullied land.									
Demopolis	3D	Slight	Slight	Severe	Moderate	Eastern redcedar	40	*	Eastern redcedar.
HaB, HaD2: Halso	9C	Slight	Moderate	Slight	Moderate	Loblolly pine	85	2.1	Loblolly pine, water oak, sweetgum.
						Shortleaf pine	80	---	
						Water oak	80	---	
						Sweetgum	90	---	
HbA**:									
Harleston	9A	Slight	Slight	Slight	Moderate	Loblolly pine	90	2.2	Loblolly pine.
						Shortleaf pine	80	---	
						Sweetgum	75	---	
Bigbee	7S	Slight	Slight	Moderate	Slight	Loblolly pine	75	1.4	Loblolly pine.

See footnotes at end of table.

Table 8.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
HoA------------- Houlka	6W	Slight	Moderate	Severe	Severe	Sweetgum-----------	95	1.0	Sweetgum, water oak, eastern cottonwood, cherrybark oak, American sycamore, green ash, Nuttall oak.
						Green ash----------	85	---	
						Eastern cottonwood--	105	---	
						Cherrybark oak------	105	---	
						Nuttall oak---------	105	---	
						Shumard oak---------	105	---	
						American sycamore---	100	---	
						Water oak----------	85	---	
IzA------------- Izagora	10W	Slight	Moderate	Slight	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, yellow-poplar, water oak.
						Sweetgum-----------	90	---	
						Yellow-poplar-------	100	---	
						Water oak----------	90	---	
KpC------------- Kipling	8C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	85	2.1	Loblolly pine, cherrybark oak, Shumard oak, sweetgum.
						Cherrybark oak------	90	---	
						Shumard oak---------	85	---	
						Sweetgum-----------	90	---	
						Water oak----------	80	---	
						White oak----------	80	---	
KuC**:									
Kipling.									
Urban land.									
LaA------------- Lucedale	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
LvB, LvD2------- Luverne	9C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
MiA------------- Minter	9W	Slight	Severe	Severe	Severe	Loblolly pine-------	90	2.2	Loblolly pine, sweetgum, cherrybark oak, water oak, baldcypress.
						Sweetgum-----------	90	---	
						Water oak----------	90	---	
						Blackgum-----------	---	---	
						Southern red oak----	---	---	
						Cherrybark oak------	---	---	
						Shumard oak---------	---	---	
MKA**:									
Mooreville-----	10W	Slight	Moderate	Severe	Moderate	Loblolly pine-------	100	2.7	Cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, yellow-poplar.
						Cherrybark oak------	100	---	
						Eastern cottonwood--	105	---	
						Green ash----------	80	---	
						Sweetgum-----------	100	---	
						Yellow-poplar-------	100	---	
Mantachie------	10W	Slight	Severe	Severe	Severe	Loblolly pine-------	100	2.7	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	---	

See footnotes at end of table.

Table 8.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns: Erosion hazard	Management concerns: Equip- ment limita- tion	Management concerns: Seedling mortal- ity	Management concerns: Plant competi- tion	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
MKA**:									
Kinston--------	8W	Slight	Severe	Severe	Severe	Water oak-----------	90	1.0	Loblolly pine, eastern cottonwood, cherrybark oak, green ash, sweetgum.
						Sweetgum------------	95	---	
						Loblolly pine-------	100	---	
						Eastern cottonwood--	100	---	
						Cherrybark oak------	95	---	
OkC, OtD2------- Oktibbeha	9C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80	---	
						Eastern redcedar----	55	---	
						Southern red oak----	80	---	
RvA------------- Riverview	11A	Slight	Slight	Slight	Severe	Loblolly pine-------	100	2.7	Loblolly pine, yellow-poplar, sweetgum, eastern cottonwood, American sycamore.
						Yellow-poplar-------	110	---	
						Sweetgum------------	100	---	
SaA------------- Savannah	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, American sycamore, yellow-poplar.
						Longleaf pine-------	80	---	
						Sweetgum------------	85	---	
ScC2------------ Searcy	12C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	105	2.9	Loblolly pine.
						Shortleaf pine------	---	---	
						Sweetgum------------	---	---	
SdC, SdD-------- Smithdale	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	85	2.1	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
SmF**:									
Smithdale------	9R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	2.1	Loblolly pine, longleaf pine,
						Longleaf pine-------	70	---	
Boykin---------	9R	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	85	2.1	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
Luverne--------	9R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
SnA**:									
Steens---------	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, sweetgum, Shumard oak, cherrybark oak.
						Sweetgum------------	85	---	
						Water oak-----------	90	---	
Yonges---------	10W	Slight	Severe	Severe	--------	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, American sycamore, water tupelo.
						Sweetgum------------	100	---	
						Water oak-----------	100	---	

See footnotes at end of table.

Table 8.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
SnA**:									
Harleston------	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80	---	
						Sweetgum-----------	75	---	
SrB------------ Subran	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	---	---	
						Sweetgum-----------	---	---	
StA------------ Sucarnoochee	6W	Slight	Severe	Moderate	Severe	Cherrybark oak------	100	1.1	Cherrybark oak, eastern cottonwood, American sycamore, yellow-poplar, sweetgum.
						American sycamore---	110	---	
						Yellow-poplar-------	110	---	
						Sweetgum-----------	100	---	
						Green ash----------	90	---	
						Eastern cottonwood	110	---	
SuE2----------- Sumter	3C	Slight	Slight	Moderate	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
SwB**, SwC2**:									
Sumter---------	3C	Slight	Slight	Moderate	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
Watsonia-------	7D	Slight	Moderate	Severe	Moderate	Loblolly pine-------	75	1.4	Loblolly pine.
						Eastern redcedar----	40	---	
TsA------------ Tuscumbia	5W	Slight	Moderate	Severe	Severe	Sweetgum-----------	85	1.0	Green ash, sweetgum, Shumard oak, Nutall oak.
						Green ash----------	80	---	
UnA------------ Una	6W	Slight	Severe	Severe	Severe	Water tupelo--------	65	0.5	Water tupelo.
						Baldcypress---------	80	---	
						Swamp tupelo--------	---	---	
UuB**:									
Urbo-----------	10W	Slight	Severe	Severe	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, cherrybark oak, American sycamore, green ash.
						Cherrybark oak------	95	---	
						Green ash----------	95	---	
						Water oak----------	90	---	
						Sweetgum-----------	95	---	
Mooreville-----	10W	Slight	Moderate	Severe	Moderate	Loblolly pine-------	100	2.7	Cherrybark oak, green ash, loblolly pine, sweetgum.
						Cherrybark oak------	100	---	
						Eastern cottonwood--	105	---	
						Green ash----------	80	---	
						Sweetgum-----------	100	---	
						Yellow-poplar-------	100	---	
Una------------	6W	Slight	Severe	Severe	Severe	Water tupelo--------	65	0.5	Water tupelo.
						Baldcypress---------	---	---	
						Swamp tupelo--------	---	---	

See footnotes at end of table.

Table 8.--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
VdA------------- Vaiden	8C	Slight	Moderate	Severe	Severe	Loblolly pine-------	80	1.8	Loblolly pine.
						Shortleaf pine------	65		
						Southern red oak----	70		
WdD------------- Wadley	9S	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
WxB, WxD2------- Wilcox	9C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	70	---	
YoA------------- Yonges	10W	Slight	Severe	Severe	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, American sycamore, water tupelo.
						Sweetgum------------	100	---	
						Water oak-----------	100	---	

* Volume is expressed as the average yearly growth in cords 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, sweetgum, and water tupelo. Volume for eastern redcedar is 140 board feet per acre per year calculated at the age of 40 years for fully stocked, natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.--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
BaA: Bama	Slight	Slight	Slight	Slight	Slight.
BaB: Bama	Slight	Slight	Moderate: slope.	Slight	Slight.
BbA*:					
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Iuka	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
BgB: Bigbee	Severe: flooding.	Moderate: too sandy.	Moderate: too sandy, flooding.	Moderate: too sandy.	Moderate: droughty, flooding.
BnB: Bonneau	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
BoB: Boykin	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
BpE*:					
Boykin	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Wadley	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too sandy.	Severe: slope.
BrC: Brantley	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight	Slight.
BrD2: Brantley	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
BsF2*:					
Brantley	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Okeelala	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CaA: Cahaba	Severe: flooding.	Slight	Slight	Slight	Slight.
CbA: Cahaba	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
CcB: Cahaba	Severe: flooding.	Slight	Moderate: slope.	Slight	Slight.

See footnote at end of table.

Table 9.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ChB*:					
Chrysler	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
Lenoir	Severe: flooding, wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
CoA Consul	Severe: wetness, percs slowly, too clayey.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, percs slowly.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
DeD2 Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.
DuD*:					
Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.
Urban land	Variable	Variable	Variable	Variable	Variable.
FnB, FnC Faunsdale	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
FsB Freest	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
GdE3*:					
Gullied land	Variable	Variable	Variable	Variable	Variable.
Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.	Severe: depth to rock.
HaB Halso	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Slight.
HaD2 Halso	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Slight	Moderate: slope.
HbA*:					
Harleston	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
Bigbee	Severe: flooding.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: droughty.
HoA Houlka	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
IzA Izagora	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.

See footnote at end of table.

Table 9.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
KpC------------------- Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
KuC*:					
Kipling--------------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Urban land-----------	Variable--------	Variable--------	Variable--------	Variable--------	Variable.
LaA------------------- Lucedale	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
LvB------------------- Luverne	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
LvD2------------------ Luverne	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
MiA------------------- Minter	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
MKA*:					
Mooreville-----------	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
Mantachie------------	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Kinston--------------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
OkC------------------- Oktibbeha	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight----------	Slight.
OtD2------------------ Oktibbeha	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
Pt*------------------- Pits	Variable--------	Variable--------	Variable--------	Variable--------	Variable.
Qu*------------------- Quarry	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight----------	Severe: depth to rock.
RvA------------------- Riverview	Severe: flooding.	Slight----------	Moderate: flooding.	Slight----------	Moderate: flooding.

See footnote at end of table.

Table 9.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SaA------------------- Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
ScC2------------------ Searcy	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight----------	Slight.
SdC------------------- Smithdale	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.
SdD------------------- Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
SmF*:					
Smithdale------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Boykin---------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Luverne--------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SnA*:					
Steens---------------	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Yonges---------------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Harleston------------	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight----------	Slight.
SrB------------------- Subran	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight----------	Slight.
StA------------------- Sucarnoochee	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
SuE2------------------ Sumter	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
SwB*, SwC2*:					
Sumter---------------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Severe: erodes easily.	Moderate: depth to rock.
Watsonia-------------	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, depth to rock, percs slowly.	Severe: too clayey.	Severe: depth to rock, too clayey.

See footnote at end of table.

Table 9.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WdD------------------- Wadley	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
TsA------------------- Tuscumbia	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
UnA------------------- Una	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
Ur*------------------- Urban land	Variable--------	Variable--------	Variable--------	Variable--------	Variable.
UuB*:					
Urbo-----------------	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Mooreville-----------	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
Una------------------	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
VdA------------------- Vaiden	Severe: wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey.	Severe: too clayey.
WdD------------------- Wadley	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
WxB------------------- Wilcox	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, erodes easily.	Severe: too clayey.
WxD2------------------ Wilcox	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey, erodes easily.	Severe: too clayey.
YoA------------------- Yonges	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.--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: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
BaA----------------Bama	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BaB----------------Bama	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BbA*:										
Bibb--------------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Iuka--------------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
BgB----------------Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
BnB----------------Bonneau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
BoB----------------Boykin	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
BpE*:										
Boykin------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Poor	Very poor.
Wadley------------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
BrC, BrD2----------Brantley	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BsF2*:										
Brantley----------	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Okeelala----------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CaA, CbA, CcB------Cahaba	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ChB*:										
Chrysler----------	Good	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Lenoir------------	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
CoA----------------Consul	Poor	Fair	Fair	Fair	Fair	Poor	Good	Fair	Fair	Fair.
DeD2---------------Demopolis	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
DuD*:										
Demopolis---------	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Urban land--------	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 10.--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	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
FnB, FnC: Faunsdale	Good	Good	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
FsB: Freest	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
GdE3*:										
Gullied land	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Very poor.	Very poor.	Very poor.
Demopolis	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
HaB: Halso	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HaD2: Halso	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HbA*:										
Harleston	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Good	Poor	Poor.
HoA: Houlka	Poor	Fair	Fair	Good	Fair	Fair	Good	Fair	Good	Fair.
IzA: Izagora	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
KpC: Kipling	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
KuC*:										
Kipling	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
Urban land	---	---	---	---	---	---	---	---	---	---
LaA: Lucedale	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Poor	Very poor.
LvB: Luverne	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LvD2: Luverne	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MiA: Minter	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
MKA*:										
Mooreville	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Mantachie	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair.
Kinston	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.

See footnote at end of table.

Table 10.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
OkC---------------- Oktibbeha	Fair	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Poor.
OtD2--------------- Oktibbeha	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Pt*---------------- Pits	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Qu*---------------- Quarry	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
RvA---------------- Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
SaA---------------- Savannah	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ScC2--------------- Searcy	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
SdC, SdD----------- Smithdale	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SmF*:										
Smithdale---------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Boykin------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Luverne-----------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SnA*:										
Steens------------	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
Yonges------------	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Harleston---------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
SrB---------------- Subran	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
StA---------------- Sucarnoochee	Poor	Fair	Poor	Good	Poor	Fair	Fair	Poor	Fair	Fair.
SuE2--------------- Sumter	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
SwB*, SwC2*:										
Sumter------------	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Watsonia----------	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Very poor.

See footnote at end of table.

Table 10.--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	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
TsA---------------- Tuscumbia	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
UnA---------------- Una	Poor	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Very poor.	Good.
Ur*---------------- Urban land	---	---	---	---	---	---	---	---	---	---
UuB*:										
Urbo---------------	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair.
Mooreville--------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Una---------------	Poor	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Very poor.	Good.
VdA---------------- Vaiden	Fair	Fair	Fair	Good	Good	Poor	Fair	Fair	Good	Poor.
WdD---------------- Wadley	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
WxB---------------- Wilcox	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
WxD2--------------- Wilcox	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
YoA---------------- Yonges	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.--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
BaA, BaB: Bama	Slight	Slight	Slight	Slight	Slight	Slight.
BbA*:						
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Iuka	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
BgB: Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
BnB: Bonneau	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
BoB: Boykin	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
BpE*:						
Boykin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wadley	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
BrC: Brantley	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
BrD2: Brantley	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
BsF2*:						
Brantley	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Okeelala	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CaA: Cahaba	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
CbA: Cahaba	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
CcB: Cahaba	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.

See footnote at end of table.

Table 11.--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
ChB*:						
Chrysler	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Moderate: wetness, flooding.
Lenoir	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Moderate: wetness, flooding.
CoA Consul	Severe: cutbanks cave, wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell, low strength.	Severe: wetness, too clayey.
DeD2 Demopolis	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Severe: depth to rock.
DuD*:						
Demopolis	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Severe: depth to rock.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
FnB, FnC Faunsdale	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
FsB Freest	Severe: wetness.	Moderate shrink-swell, wetness.	Severe: wetness.	Moderate shrink-swell, wetness.	Moderate shrink-swell, low strength.	Moderate: wetness.
GdE3*:						
Gullied land	Variable	Variable	Variable	Variable	Variable	Variable.
Demopolis	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Severe: depth to rock.
HaB Halso	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
HaD2 Halso	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
HbA*:						
Harleston	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Slight.
Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Moderate: droughty.
HoA Houlka	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, flooding, shrink-swell.	Severe: flooding.

See footnote at end of table.

Table 11.--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
IzA: Izagora	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Slight.
KpC: Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
KuC*:						
Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
LaA: Lucedale	Slight	Slight	Slight	Slight	Slight	Slight.
LvB: Luverne	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
LvD2: Luverne	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MiA: Minter	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
MKA*:						
Mooreville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
Mantachie	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
Kinston	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
OkC: Oktibbeha	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
OtD2: Oktibbeha	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
Pt*: Pits	Variable	Variable	Variable	Variable	Variable	Variable.
Qu*: Quarry	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.

See footnote at end of table.

Table 11.--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
RvA--------------- Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
SaA--------------- Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
ScC2-------------- Searcy	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Slight.
SdC--------------- Smithdale	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
SdD--------------- Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
SmF*:						
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Boykin-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Luverne----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
SnA*:						
Steens-----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
Yonges-----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Harleston--------	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
SrB--------------- Subran	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
StA--------------- Sucarnoochee	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, too clayey.
SuE2-------------- Sumter	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.
SwB*, SwC2*:						
Sumter-----------	Moderate: depth to rock.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: depth to rock.

See footnote at end of table.

Table 11.--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*, SwC2*:						
Watsonia	Severe: depth to rock.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: depth to rock, too clayey.
TsA: Tuscumbia	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.
UnA: Una	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, flooding, too clayey.
Ur*: Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
UuB*:						
Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Mooreville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
Una	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, flooding, too clayey.
VdA: Vaiden	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
WdD: Wadley	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
WxB: Wilcox	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
WxD2: Wilcox	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: too clayey.
YoA: Yonges	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12.--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
BaA-----------------Bama	Slight-----------	Moderate: seepage.	Slight-----------	Slight-----------	Good.
BaB-----------------Bama	Slight-----------	Moderate: seepage, slope.	Slight-----------	Slight-----------	Good.
BbA*:					
Bibb---------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: small stones, wetness.
Iuka---------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
BgB-----------------Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
BnB-----------------Bonneau	Severe: wetness.	Severe: seepage.	Severe: wetness.	Severe: seepage.	Good.
BoB-----------------Boykin	Slight-----------	Severe: seepage.	Slight-----------	Severe: seepage.	Fair: too clayey.
BpE*:					
Boykin-------------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: slope.
Wadley-------------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: seepage, slope.
BrC-----------------Brantley	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight-----------	Poor: too clayey.
BrD2----------------Brantley	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey.
BsF2*:					
Brantley-----------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, slope.
Okeelala-----------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
CaA-----------------Cahaba	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.

See footnote at end of table.

Table 12.--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
CbA----------------- Cahaba	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding.	Fair: thin layer.
CcB----------------- Cahaba	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
ChB*:					
Chrysler-----------	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.
Lenoir-------------	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
CoA----------------- Consul	Severe: percs slowly.	Slight-----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
DeD2---------------- Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
DuD*:					
Demopolis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
Urban land---------	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
FnB, FnC------------ Faunsdale	Severe: percs slowly.	Moderate: slope, wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
FsB----------------- Freest	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
GdE3*:					
Gullied land-------	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
Demopolis----------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
HaB----------------- Halso	Severe: percs slowly.	Moderate: depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
HaD2---------------- Halso	Severe: percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
HbA*:					
Harleston----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

See footnote at end of table.

Table 12.--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
HbA*:					
Bigbee	Severe: wetness, poor filter.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Poor: seepage, too sandy.
HoA Houlka	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
IzA Izagora	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness, thin layer.
KpC Kipling	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
KuC*:					
Kipling	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Urban land	Variable	Variable	Variable	Variable	Variable.
LaA Lucedale	Slight	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
LvB Luverne	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
LvD2 Luverne	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MiA Minter	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
MKA*:					
Mooreville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
Mantachie	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Kinston	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
OkC, OtD2 Oktibbeha	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, too acid.	Slight	Poor: too clayey, hard to pack.

See footnote at end of table.

Table 12.--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
Pt*: Pits	Variable	Variable	Variable	Variable	Variable.
Qu*: Quarry	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
RvA: Riverview	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
SaA: Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
ScC2: Searcy	Severe: wetness, percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
SdC: Smithdale	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
SdD: Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
SmF*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Boykin	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: slope.
Luverne	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
SnA*:					
Steens	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Yonges	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Harleston	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
SrB: Subran	Severe: wetness, percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
StA: Sucarnoochee	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

See footnote at end of table.

Table 12.--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
SuE2: Sumter	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
SwB*, SwC2*:					
Sumter	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Watsonia	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
TsA: Tuscumbia	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
UnA: Una	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Ur*: Urban land	Variable	Variable	Variable	Variable	Variable.
UuB*:					
Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Mooreville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
Una	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
VdA: Vaiden	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
WdD: Wadley	Moderate: slope.	Severe: seepage, slope.	Moderate: slope, too sandy.	Severe: seepage.	Poor: seepage.
WxB: Wilcox	Severe: wetness, percs slowly.	Moderate: depth to rock, slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness.	Poor: too clayey, hard to pack.
WxD2: Wilcox	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness, slope.	Poor: too clayey, hard to pack.

See footnote at end of table.

Table 12.--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
YoA----------------- Yonges	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 13.--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
BaA, BaB. Bama	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
BbA*:				
Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Iuka	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
BgB. Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
BnB. Bonneau	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
BoB. Boykin	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
BpE*:				
Boykin	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Wadley	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope.
BrC, BrD2. Brantley	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
BsF2*:				
Brantley	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Okeelala	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
CaA, CbA, CcB. Cahaba	Good	Probable	Improbable: too sandy.	Fair: too clayey.
ChB*:				
Chrysler	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Lenoir	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CoA. Consul	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
DeD2. Demopolis	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.

See footnote at end of table.

Table 13.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
DuD*:				
Demopolis	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Urban land	Variable	Variable	Variable	Variable.
FnB, FnC Faunsdale	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
FsB Freest	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GdE3*:				
Gullied land	Variable	Variable	Variable	Variable.
Demopolis	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
HaB, HaD2 Halso	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HbA*:				
Harleston	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
HoA Houlka	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
IzA Izagora	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
KpC Kipling	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
KuC*:				
Kipling	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land	Variable	Variable	Variable	Variable.
LaA Lucedale	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
LvB, LvD2 Luverne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

See footnote at end of table.

Table 13.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
MiA------------------ Minter	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
MKA*:				
Mooreville-----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Mantachie------------	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Kinston--------------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
OkC, OtD2------------ Oktibbeha	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Pt*------------------ Pits	Variable------------	Variable------------	Variable------------	Variable.
Qu*------------------ Quarry	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
RvA------------------ Riverview	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
SaA------------------ Savannah	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
ScC2----------------- Searcy	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SdC------------------ Smithdale	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Good.
SdD------------------ Smithdale	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
SmF*:				
Smithdale-----------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Boykin--------------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Luverne-------------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
SnA*:				
Steens--------------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnote at end of table.

Table 13.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
SnA*:				
Yonges	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Harleston	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
SrB Subran	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
StA Sucarnoochee	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
SuE2 Sumter	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SwB*, SwC2*:				
Sumter	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Watsonia	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey.
TsA Tuscumbia	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
UnA Una	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ur* Urban land	Variable	Variable	Variable	Variable.
UuB*:				
Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Mooreville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Una	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

See footnote at end of table.

Table 13.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
VdA: Vaiden	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WdD: Wadley	Good	Probable	Improbable: too sandy.	Fair: too sandy, slope.
WxB, WxD2: Wilcox	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
YoA: Yonges	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.--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-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
BaA: Bama	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable	Favorable	Favorable.
BaB: Bama	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope	Favorable	Favorable.
BbA*:						
Bibb	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
Iuka	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness, erodes easily.
BgB: Bigbee	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
BnB: Bonneau	Severe: seepage.	Severe: thin layer.	Deep to water	Droughty, fast intake.	Soil blowing	Droughty.
BoB: Boykin	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
BpE*:						
Boykin	Severe: seepage, slope.	Severe: piping.	Deep to water	Droughty, fast intake, slope.	Too sandy, slope, soil blowing.	Slope, droughty.
Wadley	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy, soil blowing.	Slope, droughty.
BrC: Brantley	Moderate: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
BrD2: Brantley	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
BsF2*:						
Brantley	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Okeelala	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.

See footnote at end of table.

Table 14.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CaA, CbA: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Favorable	Favorable	Favorable.
CcB: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Slope	Favorable	Favorable.
ChB*:						
Chrysler	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Lenoir	Slight	Severe: wetness.	Percs slowly, flooding, too acid.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
CoA: Consul	Slight	Severe: hard to pack.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
DeD2: Demopolis	Severe: depth to rock.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
DuD*:						
Demopolis	Severe: depth to rock.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
FnB: Faunsdale	Slight	Severe: hard to pack.	Deep to water	Percs slowly	Erodes easily, percs slowly.	Erodes easily, percs slowly.
FnC: Faunsdale	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
FsB: Freest	Slight	Severe: wetness.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
GdE3*:						
Gullied land	Variable	Variable	Variable	Variable	Variable	Variable.
Demopolis	Severe: depth to rock.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
HaB: Halso	Moderate: depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
HaD2: Halso	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
HbA*:						
Harleston	Moderate: seepage.	Severe: piping.	Favorable	Wetness	Wetness	Favorable.
Bigbee	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.

See footnote at end of table.

Table 14.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
HoA-------------- Houlka	Slight---------	Severe: hard to pack.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
IzA-------------- Izagora	Moderate: seepage.	Moderate: piping, wetness.	Favorable------	Wetness--------	Wetness--------	Favorable.
KpC-------------- Kipling	Moderate: slope.	Severe: hard to pack.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
KuC*:						
Kipling----------	Slight---------	Severe: hard to pack.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Urban land-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
LaA-------------- Lucedale	Moderate: seepage.	Severe: piping.	Deep to water	Favorable------	Favorable------	Favorable.
LvB-------------- Luverne	Moderate: slope.	Severe: piping, hard to pack.	Deep to water	Slope----------	Favorable------	Favorable.
LvD2------------- Luverne	Severe: slope.	Severe: piping, hard to pack.	Deep to water	Slope----------	Slope----------	Slope.
MiA-------------- Minter	Slight---------	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
MKA*:						
Mooreville-------	Moderate: seepage.	Severe: wetness.	Flooding-------	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Mantachie--------	Moderate: seepage.	Severe: piping, wetness.	Flooding-------	Wetness, flooding.	Wetness--------	Wetness.
Kinston----------	Moderate: seepage.	Severe: wetness.	Flooding-------	Wetness, flooding.	Wetness--------	Wetness.
OkC-------------- Oktibbeha	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly---	Percs slowly.
OtD2------------- Oktibbeha	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, slow intake, percs slowly.	Percs slowly---	Percs slowly.
Pt*-------------- Pits	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
Qu*-------------- Quarry	Severe: depth to rock.	Slight---------	Deep to water	Depth to rock	Depth to rock	Depth to rock.
RvA-------------- Riverview	Severe: seepage.	Severe: piping.	Deep to water	Flooding-------	Soil blowing---	Favorable.

See footnote at end of table.

Table 14.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
SaA: Savannah	Moderate: seepage.	Severe: piping.	Favorable	Wetness, droughty.	Wetness	Rooting depth.
ScC2: Searcy	Moderate: slope.	Moderate: hard to pack, wetness.	Percs slowly, slope.	Slope, wetness, soil blowing.	Wetness, soil blowing.	Percs slowly.
SdC: Smithdale	Severe: seepage.	Severe: piping.	Deep to water	Fast intake, slope.	Favorable	Favorable.
SdD: Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Fast intake, slope.	Slope	Slope.
SmF*:						
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
Boykin	Severe: seepage, slope.	Severe: piping.	Deep to water	Droughty, fast intake, slope.	Too sandy, slope, soil blowing.	Slope, droughty.
Luverne	Severe: slope.	Severe: piping, hard to pack.	Deep to water	Slope	Slope	Slope.
SnA*:						
Steens	Slight	Severe: wetness.	Favorable	Wetness	Wetness	Wetness.
Yonges	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Harleston	Moderate: seepage.	Severe: piping.	Favorable	Wetness	Wetness	Favorable.
SrB: Subran	Moderate: slope.	Moderate: hard to pack, wetness.	Percs slowly, slope.	Slope, wetness, soil blowing.	Wetness, soil blowing, percs slowly.	Percs slowly.
StA: Sucarnoochee	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
SuE2: Sumter	Severe: slope.	Severe: thin layer.	Deep to water	Slope, percs slowly.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
SwB*:						
Sumter	Moderate: seepage, depth to rock.	Severe: thin layer.	Deep to water	Percs slowly	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Watsonia	Severe: depth to rock.	Severe: thin layer, hard to pack.	Deep to water, percs slowly, depth to rock.	Slow intake, percs slowly.	Depth to rock, erodes easily, percs slowly.	Erodes easily, depth to rock, percs slowly.

See footnote at end of table.

Table 14.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
SwC2*:						
Sumter	Moderate: seepage, depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, percs slowly.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Watsonia	Severe: depth to rock.	Severe: thin layer, hard to pack.	Deep to water, percs slowly, depth to rock.	Slope, slow intake, percs slowly.	Depth to rock, erodes easily, percs slowly.	Erodes easily, depth to rock, percs slowly.
TsA: Tuscumbia	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
UnA: Una	Slight	Severe: ponding.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
Ur*: Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
UuB*:						
Urbo	Slight	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Mooreville	Moderate: seepage.	Severe: wetness.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Una	Slight	Severe: ponding.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
VdA: Vaiden	Slight	Severe: hard to pack.	Percs slowly	Wetness, slow intake.	Wetness, percs slowly.	Wetness, percs slowly.
WdD: Wadley	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy, soil blowing.	Slope, droughty.
WxB: Wilcox	Moderate: depth to rock, slope.	Severe: hard to pack.	Percs slowly, slope.	Slope, percs slowly, slow intake.	Percs slowly.	Percs slowly.
WxD2: Wilcox	Severe: slope.	Severe: hard to pack.	Percs slowly, slope.	Slope, percs slowly, slow intake.	Slope, percs slowly.	Slope, percs slowly.
YoA: Yonges	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 15.--Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
BaA-------------- Bama	0-11	Fine sandy loam	SM, SC, SC-SM, CL-ML	A-4	95-100	85-100	70-95	40-70	<30	NP-10
	11-42	Loam, sandy clay loam.	SM, SC, SC-SM, CL-ML	A-4, A-6	90-100	85-100	80-95	36-70	15-35	2-15
	42-65	Loam, sandy clay loam, clay loam.	SC, CL	A-4, A-6	85-100	80-100	80-95	40-70	20-40	8-18
BaB-------------- Bama	0-7	Fine sandy loam	SM, SC, SC-SM, CL-ML	A-4	95-100	85-100	70-95	40-70	<30	NP-10
	7-26	Loam, sandy clay loam.	SM, SC, SC-SM, CL-ML	A-4, A-6	90-100	85-100	80-95	36-70	15-35	2-15
	26-65	Loam, sandy clay loam, clay loam.	SC, CL	A-4, A-6	85-100	80-100	80-95	40-70	20-40	8-18
BbA*:										
Bibb------------	0-8	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	95-100	90-100	60-90	30-60	<25	NP-7
	8-65	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
Iuka------------	0-10	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2	95-100	90-100	70-100	30-60	<20	NP-7
	10-24	Fine sandy loam, loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-4	95-100	85-100	65-100	36-75	<30	NP-7
	24-65	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	95-100	90-100	70-100	25-60	<30	NP-7
BgB-------------- Bigbee	0-9	Loamy sand-------	SM	A-2-4	100	95-100	60-90	15-30	<20	NP
	9-80	Sand, loamy sand	SP-SM, SM	A-2-4, A-3	85-100	85-100	50-75	5-20	<20	NP
BnB-------------- Bonneau	0-21	Loamy fine sand	SM	A-2	100	100	50-95	15-35	<20	NP
	21-51	Sandy loam, sandy clay loam, fine sandy loam.	SC, SC-SM	A-2, A-6, A-4	100	100	60-100	30-50	21-40	4-21
	51-65	Sandy loam, sandy clay loam, sandy clay.	CL, SC, SC-SM, CL-ML	A-4, A-6, A-2	100	100	60-95	25-60	20-40	4-18
BoB-------------- Boykin	0-28	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	<20	NP
	28-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	97-100	95-100	55-95	15-50	10-30	NP-15

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
BpE*:										
Boykin----------	0-32	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	<20	NP
	32-48	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	97-100	95-100	55-95	15-50	10-30	NP-15
	48-65	Sandy clay loam, clay loam, sandy clay.	SC, SC-SM, SM	A-2, A-6, A-4	100	95-100	60-95	20-50	20-40	3-20
Wadley----------	0-57	Loamy fine sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	<20	NP
	57-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, CL-ML, CL	A-4, A-2, A-6	95-100	90-100	60-90	24-55	19-40	4-20
BrC-------------- Brantley	0-10	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4	95-100	95-100	95-100	36-55	<30	NP-7
	10-45	Clay, clay loam, sandy clay.	CL, ML	A-7	95-100	95-100	90-100	60-75	41-50	16-22
	45-55	Sandy clay loam, clay loam.	SC, SM, CL, ML	A-4, A-6	95-100	95-100	80-100	36-70	30-40	7-15
	55-70	Fine sandy loam, loamy fine sand, sandy clay loam.	SM, SC, ML	A-2, A-4	95-100	95-100	70-100	30-60	<38	NP-9
BrD2------------- Brantley	0-5	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4	95-100	95-100	95-100	36-55	<30	NP-7
	5-45	Clay, clay loam, sandy clay.	CL, ML	A-7	95-100	95-100	90-100	60-75	41-50	16-22
	45-65	Fine sandy loam, loamy fine sand, sandy clay loam.	SM, SC, ML	A-2, A-4	95-100	95-100	70-100	30-60	<38	NP-9
BsF2*:										
Brantley--------	0-4	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4	95-100	95-100	95-100	36-55	<30	NP-7
	4-35	Clay, clay loam, sandy clay.	CL, ML	A-7	95-100	95-100	90-100	60-75	41-50	16-22
	35-43	Sandy clay loam, clay loam.	SC, SM, CL, ML	A-4, A-6	95-100	95-100	80-100	36-70	30-40	7-15
	43-65	Fine sandy loam, loamy fine sand, sandy clay loam.	SM, SC, ML	A-2, A-4	95-100	95-100	70-100	30-60	<38	NP-9
Okeelala--------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	3-19	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
	19-65	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
CaA-------------- Cahaba	0-6	Fine sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	<20	NP
	6-47	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	47-90	Loamy sand, fine sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	<20	NP

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
CbA--------------	0-7	Fine sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	<20	NP
Cahaba	7-43	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	43-65	Loamy sand, sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	<20	NP
CcB--------------	0-7	Fine sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	<20	NP
Cahaba	7-36	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	36-65	Loamy sand, sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	<20	NP
ChB*:										
Chrysler--------	0-6	Silt loam--------	SM, ML	A-4	95-100	95-100	70-100	40-75	<30	NP-7
	6-42	Silty clay loam, silty clay, clay.	CL, ML, CH, MH	A-7	95-100	95-100	90-100	85-100	45-70	15-35
	42-65	Stratified sandy loam to clay.	---	---	95-100	95-100	70-100	40-100	<30	
Lenoir----------	0-10	Loam------------	ML, CL, CL-ML	A-4	100	100	85-98	60-85	20-35	3-10
	10-80	Clay, silty clay, clay loam.	CL, CH	A-6, A-7	100	100	85-99	55-95	40-65	11-35
CoA--------------	0-6	Clay------------	CH, MH	A-7	100	100	95-100	90-100	51-70	23-40
Consul	6-52	Clay------------	CH, MH	A-7	100	100	95-100	90-100	51-105	25-70
	52-80	Clay------------	CH, MH	A-7	100	100	95-100	80-95	51-100	25-60
DeD2-------------	0-6	Silty clay loam	CL, CL-ML	A-4, A-6	85-100	75-90	65-85	50-80	24-44	6-20
Demopolis	6-13	Loam, clay loam, silty clay loam.	CL, CL-ML	A-4, A-6	60-90	60-90	60-80	50-80	20-35	7-15
	13-65	Weathered bedrock	---	---	---	---	---	---	---	---
DuD*:										
Demopolis-------	0-5	Silty clay loam	CL, CL-ML	A-4, A-6	85-100	75-90	65-85	50-80	24-44	6-20
	5-11	Loam, clay loam, silty clay loam.	CL, CL-ML	A-4, A-6	60-90	60-90	60-80	50-80	20-35	7-15
	11-60	Weathered bedrock	---	---	---	---	---	---	---	---
Urban land------	0-6	Variable---------	---	---	---	---	---	---	---	---
FnB--------------	0-7	Clay loam--------	CL, CH	A-7	98-100	92-100	88-100	80-95	44-56	23-33
Faunsdale	7-14	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	85-95	51-76	30-49
	14-48	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	80-95	51-76	30-49
	48-65	Silty clay, clay	CH	A-7	96-100	92-100	88-100	85-98	56-76	33-49

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
FnC-------------- Faunsdale	0-5	Clay loam--------	CL, CH	A-7	98-100	92-100	88-100	80-95	44-56	23-33
	5-14	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	85-95	51-76	30-49
	14-30	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	80-95	51-76	30-49
	30-68	Silty clay, clay	CH	A-7	96-100	92-100	88-100	85-98	56-76	33-49
	68-90	Silty clay, clay	CH	A-7	90-100	78-96	75-90	70-88	56-76	33-49
	90-95	Weathered bedrock	---	---	---	---	---	---	---	---
FsB-------------- Freest	0-8	Fine sandy loam	SM, CL, ML, CL-ML	A-4	100	95-100	60-90	40-70	<30	NP-8
	8-24	Loam, sandy clay loam.	CL	A-4, A-6	100	95-100	80-95	55-75	25-40	7-20
	24-65	Clay loam, clay, silty clay.	CL, CH	A-7	100	95-100	90-100	80-95	41-55	20-30
GdE3*:										
Gullied land----	0-60	Variable---------	---	---	---	---	---	---	---	---
Demopolis-------	0-7	Silty clay loam	CL, CL-ML	A-4, A-6	85-100	75-90	65-85	50-80	24-44	6-20
	7-14	Loam, clay loam, silty clay loam.	CL, CL-ML	A-4, A-6	60-90	60-90	60-80	58-80	20-35	7-15
	14-60	Weathered bedrock	---	---	---	---	---	---	---	---
HaB-------------- Halso	0-7	Fine sandy loam	SM, ML	A-4	95-100	95-100	70-100	40-70	<20	NP
	7-44	Clay, silty clay	ML, MH	A-7	95-100	95-100	90-100	80-98	45-70	15-35
	44-65	Weathered bedrock	---	---	---	---	---	---	---	---
HaD2------------- Halso	0-4	Fine sandy loam	SM, ML	A-4	95-100	95-100	70-100	40-70	<20	NP
	4-50	Clay, silty clay	ML, MH	A-7	95-100	95-100	90-100	80-98	45-70	15-35
	50-65	Weathered bedrock	---	---	---	---	---	---	---	---
HbA*:										
Harleston-------	0-13	Fine sandy loam	ML, SM, CL-ML, SC-SM	A-2, A-4	90-100	85-100	60-85	30-55	<25	NP-7
	13-48	Fine sandy loam, loam.	SC, CL, CL-ML, SC-SM	A-2, A-4	90-100	85-100	60-95	30-70	20-30	5-10
	48-65	Fine sandy loam, loam, sandy clay loam.	SC, CL, SC, ML, SC-SM	A-2, A-4, A-6	90-100	85-100	60-95	30-70	20-35	5-13
Bigbee----------	0-5	Loamy sand-------	SM	A-2-4	100	95-100	60-90	15-30	<20	NP
	5-65	Sand, loamy sand	SP-SM, SM	A-2-4, A-3	85-100	85-100	50-75	5-20	<20	NP
HoA-------------- Houlka	0-6	Silty clay loam	CH, CL	A-7	100	100	80-95	55-95	45-55	25-35
	6-65	Clay, silty clay, clay loam.	CH	A-7	100	100	95-100	80-97	52-75	30-50
IzA-------------- Izagora	0-8	Sandy loam-------	SM, SC-SM, ML, CL-ML	A-4	95-100	95-100	70-95	40-65	<25	NP-5
	8-32	Loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	95-100	95-100	85-100	60-95	25-45	8-25
	32-65	Clay loam, clay	CL, CH	A-6, A-7	95-100	95-100	90-100	70-95	35-60	20-40

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
KpC--------------	0-7	Clay loam--------	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-25
Kipling	7-41	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	41-65	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50
KuC*:										
Kipling---------	0-3	Clay loam--------	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-25
	3-43	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	43-65	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50
Urban land------	0-6	Variable---------	---	---	---	---	---	---	---	---
LaA--------------	0-8	Fine sandy loam	SM, ML	A-2, A-4	100	95-100	80-95	25-65	<30	NP-3
Lucedale	8-65	Sandy clay loam, clay loam, loam.	CL-ML, SC, CL, SC-SM	A-4, A-6, A-2	95-100	95-100	80-100	30-75	25-40	4-15
LvB--------------	0-6	Sandy loam-------	ML, SM	A-4, A-2	87-100	84-100	80-100	30-60	<20	NP
Luverne	6-28	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	95-100	90-100	85-100	50-95	38-70	8-30
	28-65	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
LvD2-------------	0-6	Sandy loam-------	ML, SM	A-4, A-2	87-100	84-100	80-100	30-60	<20	NP
Luverne	6-37	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	95-100	90-100	85-100	50-95	38-70	8-30
	37-65	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
MiA--------------	0-5	Loam-------------	CL, ML, CL-ML	A-4, A-6	100	100	80-100	65-95	26-40	5-18
Minter	5-65	Clay loam, silty clay, clay.	CL, CH	A-6, A-7	100	100	90-100	75-95	37-59	18-32
MKA*:										
Mooreville------	0-5	Loam-------------	CL-ML, CL, SC-SM, SC	A-4	100	100	80-100	40-85	20-30	5-10
	5-36	Sandy clay loam, clay loam, loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
	36-72	Loam, sandy clay loam, clay loam.	SC, CL	A-6, A-7	100	100	80-95	45-80	28-50	15-30
Mantachie-------	0-3	Fine sandy loam	CL-ML, SC-SM, SM, ML	A-4	95-100	90-100	60-85	40-60	<20	NP-5
	3-65	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
Kinston---------	0-3	Fine sandy loam	SM, SC, SC-SM	A-2, A-4	100	98-100	55-100	25-49	20-35	NP-10
	3-65	Loam, clay loam, sandy clay loam.	CL	A-4, A-6, A-7	100	95-100	75-100	60-95	20-45	8-22

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
OkC-------------- Oktibbeha	0-4	Clay loam--------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	4-13	Clay-------------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	13-45	Clay-------------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	45-80	Clay, silty clay	CL	A-7	100	100	90-100	90-100	42-65	30-45
OtD2------------- Oktibbeha	0-2	Clay-------------	CH, CL	A-7	100	100	90-100	90-100	42-64	30-40
	2-20	Clay-------------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	20-35	Clay-------------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	35-65	Clay, silty clay	CL	A-7	100	100	90-100	90-100	42-65	30-45
Pt*-------------- Pits	0-60	Variable---------	---	---	---	---	---	---	---	---
Qu*-------------- Quarry	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---
RvA-------------- Riverview	0-10	Fine sandy loam	ML, SM, CL-ML, SC-SM	A-2, A-4	95-100	90-100	85-95	30-60	<20	NP-7
	10-56	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	100	100	90-100	60-95	20-40	3-20
	56-65	Loamy fine sand, sandy loam, sand.	SM, SC-SM	A-2, A-4	100	100	50-95	15-45	<20	NP-7
SaA-------------- Savannah	0-14	Fine sandy loam	SM, ML	A-2-4, A-4	98-100	90-100	60-100	30-65	<25	NP-4
	14-27	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
	27-65	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
ScC2------------- Searcy	0-8	Fine sandy loam	SM, ML, CL-ML	A-4, A-2	95-100	95-100	80-95	30-75	<30	NP-7
	8-31	Clay, sandy clay	CH, SC	A-7	95-100	95-100	90-100	60-75	41-50	15-22
	31-65	Clay, sandy clay, silty clay.	CH, SC	A-7	95-100	95-100	90-100	60-90	45-60	20-35
SdC-------------- Smithdale	0-7	Loamy sand-------	SM	A-2	100	85-100	50-75	15-30	<20	NP
	7-49	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
	49-75	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
SdD-------------- Smithdale	0-12	Loamy sand-------	SM	A-2	100	85-100	50-75	15-30	<20	NP
	12-30	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
	30-72	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
SmF*:										
Smithdale-------	0-8	Loamy fine sand	SM, SC-SM	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	8-35	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
	35-65	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
SmF*:										
Boykin----------	0-35	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	<20	NP
	35-65	Sandy clay loam, clay loam, sandy clay.	SC, SC-SM, SM	A-2, A-6, A-4	100	95-100	60-95	20-50	20-40	3-20
Luverne---------	0-9	Fine sandy loam	ML, SM	A-4, A-2	87-100	84-100	80-100	30-60	<20	NP
	9-28	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	95-100	90-100	85-100	50-95	38-70	8-30
	28-44	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	95-100	85-100	85-100	36-76	32-56	2-14
	44-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
SnA*:										
Steens----------	0-13	Fine sandy loam	ML, CL-ML, SM, SC-SM	A-4	100	90-100	70-85	40-55	<25	NP-7
	13-60	Clay loam, loam, sandy clay loam.	CL, SC	A-4, A-6	100	90-100	80-95	40-80	22-40	8-20
Yonges----------	0-8	Fine sandy loam	SM, SC-SM, ML	A-4	100	100	70-85	40-55	15-30	NP-7
	8-65	Fine sandy loam, sandy clay loam.	CL, ML, SC, SM	A-4, A-6	100	100	80-100	40-65	20-40	3-22
Harleston-------	0-13	Fine sandy loam	ML, SM, CL-ML, SC-SM	A-2, A-4	90-100	85-100	60-85	30-55	<25	NP-7
	13-48	Fine sandy loam, loam.	SC, CL, CL-ML, SC-SM	A-2, A-4	90-100	85-100	60-95	30-70	20-30	5-10
	48-65	Fine sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SC-SM	A-2, A-4, A-6	90-100	85-100	60-95	30-70	20-35	5-13
SrB-------------- Subran	0-7	Loam-------------	CL, ML, CL-ML	A-4, A-6	95-100	95-100	80-95	50-75	25-38	9-16
	7-48	Clay loam, clay	CL, CH	A-7	95-100	95-100	85-100	45-90	35-60	16-40
	48-65	Clay loam, clay, silty clay.	CL, CH	A-7	95-100	95-100	85-100	45-90	35-60	16-40
StA-------------- Sucarnoochee	0-10	Clay-------------	CL, CH, MH	A-7	98-100	95-100	90-100	90-100	40-65	15-35
	10-18	Silty clay, clay	MH, CH, CL	A-7	98-100	95-100	90-100	85-98	45-70	20-40
	18-65	Silty clay, clay	CH, MH	A-7	98-100	95-100	90-100	85-98	50-80	25-45
SuE2------------- Sumter	0-6	Silty clay loam	CL	A-7, A-6	90-100	85-100	80-98	75-90	35-50	16-25
	6-22	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	85-100	78-98	75-95	75-95	35-55	16-32
	22-60	Weathered bedrock	---	---	---	---	---	---	---	---
Sumter----------	0-5	Silty clay loam	CL	A-7, A-6	90-100	85-100	80-98	75-90	35-50	16-25
	5-31	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	85-100	78-98	75-95	75-95	35-55	16-32
	31-60	Weathered bedrock	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
SwB*:										
Watsonia	0-3	Clay	CL, CH	A-7	100	100	95-100	90-100	42-64	30-40
	3-9	Clay, silty clay	CH	A-7	100	100	95-100	95-100	65-85	45-60
	9-17	Clay, silty clay	CH	A-7	100	95-100	95-100	95-100	60-80	40-60
	17-80	Weathered bedrock	---	---	---	---	---	---	---	---
SwC2*:										
Sumter	0-8	Silty clay loam	CL	A-7, A-6	90-100	85-100	80-98	75-90	35-50	16-25
	8-28	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	85-100	78-98	75-95	75-95	35-55	16-32
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---
Watsonia	0-4	Clay	CL, CH	A-7	100	100	95-100	90-100	42-64	30-40
	4-9	Clay, silty clay	CH	A-7	100	100	95-100	95-100	65-85	45-60
	9-17	Clay, silty clay	CH	A-7	100	95-100	95-100	95-100	60-80	40-60
	17-80	Weathered bedrock	---	---	---	---	---	---	---	---
TsA Tuscumbia	0-7	Clay loam	CL	A-6, A-7-6	100	100	80-95	55-75	30-45	15-25
	7-65	Clay, silty clay, silty clay loam.	CH	A-7	100	100	95-100	80-95	51-75	30-50
UnA Una	0-4	Silty clay	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
	4-60	Clay, silty clay loam, silty clay.	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
Ur* Urban land	0-6	Variable	---	---	---	---	---	---	---	---
UuB*:										
Urbo	0-8	Silty clay loam	CL	A-6	100	100	95-100	95-100	30-40	15-25
	8-65	Silty clay, clay loam, silty clay loam, clay.	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36
Mooreville	0-5	Loam	CL-ML, CL, SC-SM, SC	A-4	100	100	80-100	40-85	20-30	5-10
	5-48	Sandy clay loam, clay loam, loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
	48-60	Loam, sandy clay loam, clay loam.	SC, CL	A-6, A-7	100	100	80-95	45-80	28-50	15-30
Una	0-3	Silty clay	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
	3-60	Clay, silty clay loam, silty clay.	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
VdA Vaiden	0-4	Silty clay	MH, CH	A-7	100	100	95-100	90-100	50-60	20-30
	4-38	Clay	CH, MH	A-7	100	100	95-100	85-100	50-90	30-50
	38-83	Clay, silty clay	CH	A-7	95-100	95-100	90-100	85-100	50-90	30-52
WdD Wadley	0-57	Loamy fine sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	<20	NP
	57-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, CL-ML, CL	A-4, A-2, A-6	95-100	90-100	60-90	24-55	19-40	4-20

See footnote at end of table.

Table 15.--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	
WxB-------------- Wilcox	0-4	Clay-------------	CH	A-7	100	100	95-100	80-98	50-70	25-40
	4-53	Clay-------------	CH	A-7	100	100	90-100	75-98	60-80	39-55
	53-65	Weathered bedrock	---	---	---	---	---	---	---	---
WxD2------------- Wilcox	0-5	Clay-------------	CH	A-7	100	100	95-100	80-98	50-70	25-40
	5-46	Clay-------------	CH	A-7	100	100	90-100	75-98	60-80	39-55
	46-65	Weathered bedrock	---	---	---	---	---	---	---	---
YoA-------------- Yonges	0-7	Fine sandy loam	SM, SC-SM, ML	A-4	100	100	70-85	40-55	<30	NP-7
	7-30	Sandy clay loam, clay loam, sandy clay.	CL-ML, CL, SC, SC-SM	A-4, A-6, A-7	100	100	95-100	40-70	20-45	6-28
	30-54	Fine sandy loam, sandy loam, sandy clay loam.	CL, ML, SC, SM	A-4, A-6	100	100	95-100	40-65	20-40	3-22
	54-65	Variable---------	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.--Physical and Chemical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
BaA-------------- Bama	0-11	7-22	1.30-1.60	0.6-6.0	0.08-0.15	4.5-6.0	Low----------	0.24	5	.5-2
	11-42	18-32	1.40-1.55	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
	42-65	20-35	1.40-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
BaB-------------- Bama	0-7	7-22	1.30-1.60	0.6-6.0	0.08-0.15	4.5-6.0	Low----------	0.24	5	.5-2
	7-26	18-32	1.40-1.55	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
	26-65	20-35	1.40-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
BbA*:										
Bibb------------	0-8	2-18	1.50-1.70	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.20	5	1-3
	8-65	2-18	1.45-1.75	0.6-2.0	0.10-0.20	3.6-5.5	Low----------	0.37		
Iuka------------	0-10	6-15	1.40-1.60	2.0-6.0	0.10-0.15	5.1-6.0	Low----------	0.24	5	.5-2
	10-24	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.28		
	24-65	5-15	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.20		
BgB-------------- Bigbee	0-9	4-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-1
	9-80	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.17		
BnB-------------- Bonneau	0-21	5-15	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-1
	21-51	13-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
	51-65	15-40	1.40-1.60	0.6-2.0	0.10-0.16	4.5-5.5	Low----------	0.20		
BoB-------------- Boykin	0-28	1-12	1.30-1.70	6.0-20	0.05-0.10	5.1-6.0	Low----------	0.10	5	.5-1
	28-80	10-30	1.40-1.60	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24		
BpE*:										
Boykin----------	0-32	1-12	1.30-1.70	6.0-20	0.05-0.10	5.1-6.0	Low----------	0.10	5	.5-1
	32-48	10-30	1.40-1.60	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24		
	48-65	20-45	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28		
Wadley----------	0-57	2-12	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-1
	57-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20		
BrC-------------- Brantley	0-10	8-21	1.35-1.65	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.28	5	1-4
	10-41	35-55	1.35-1.55	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	41-55	25-35	1.35-1.65	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.24		
	55-70	10-25	1.40-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
BrD2------------- Brantley	0-5	8-21	1.35-1.65	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.28	5	1-4
	5-45	35-55	1.35-1.55	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	45-65	10-25	1.40-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
BsF2*:										
Brantley--------	0-4	8-21	1.35-1.65	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.28	5	1-4
	4-35	35-55	1.35-1.55	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	35-43	25-35	1.35-1.65	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.24		
	43-65	10-25	1.40-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
Okeelala--------	0-3	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	3-19	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	19-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		

See footnote at end of table.

Table 16.--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 K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
CaA-------------- Cahaba	0-6	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
	6-47	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28		
	47-90	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
CbA-------------- Cahaba	0-7	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
	7-43	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28		
	43-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
CcB-------------- Cahaba	0-7	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
	7-36	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28		
	36-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
ChB*:										
Chrysler--------	0-6	10-20	1.35-1.55	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	6-42	35-60	1.20-1.50	0.06-0.2	0.14-0.18	4.5-5.5	Moderate-----	0.32		
	42-65	10-60	1.20-1.50	0.06-0.2	0.12-0.16	4.5-5.5	Low----------	0.32		
Lenoir----------	0-10	6-20	1.30-1.50	0.6-2.0	0.14-0.18	3.5-5.5	Low----------	0.37	5	2-4
	10-80	35-60	1.20-1.35	0.06-0.2	0.13-0.15	3.5-5.5	Moderate-----	0.32		
CoA-------------- Consul	0-6	40-80	1.40-1.50	0.06-0.2	0.16-0.19	4.5-6.0	High---------	0.32	5	1-3
	6-52	60-90	1.55-1.65	<0.06	0.15-0.18	4.5-6.0	Very high----	0.28		
	52-80	50-80	1.50-1.55	<0.06	0.15-0.18	4.5-7.8	Very high----	0.28		
DeD2------------- Demopolis	0-6	17-35	1.35-1.60	0.2-0.6	0.10-0.17	7.4-8.4	Low----------	0.37	2	1-2
	6-13	20-35	1.40-1.65	0.2-0.6	0.03-0.06	7.4-8.4	Low----------	0.32		
	13-65	---	---	0.00-0.01	---	---	-------------	----		
DuD*:										
Demopolis-------	0-5	17-35	1.35-1.60	0.2-0.6	0.10-0.17	7.4-8.4	Low----------	0.37	2	1-2
	5-11	20-35	1.40-1.65	0.2-0.6	0.03-0.06	7.4-8.4	Low----------	0.32		
	11-60	---	---	0.00-0.01	---	---	-------------	----		
Urban land------	0-6	---	---	---	---	---	-------------	----	---	---
FnB-------------- Faunsdale	0-7	27-40	0.90-1.40	0.06-0.2	0.15-0.20	6.6-8.4	High---------	0.37	5	2-7
	7-14	35-60	0.90-1.40	0.06-0.2	0.14-0.20	6.6-8.4	High---------	0.37		
	14-48	35-60	1.00-1.30	0.06-0.2	0.14-0.18	6.6-8.4	High---------	0.32		
	48-65	40-60	1.00-1.30	<0.06	0.12-0.18	6.6-8.4	High---------	0.32		
FnC-------------- Faunsdale	0-5	27-40	0.90-1.40	0.06-0.2	0.15-0.20	6.6-8.4	High---------	0.37	5	2-7
	5-14	35-60	0.90-1.40	0.06-0.2	0.14-0.20	6.6-8.4	High---------	0.37		
	14-30	35-60	1.00-1.30	0.06-0.2	0.14-0.18	6.6-8.4	High---------	0.32		
	30-68	40-60	1.00-1.30	<0.06	0.12-0.18	6.6-8.4	High---------	0.32		
	68-90	40-60	1.00-1.30	<0.06	0.11-0.14	6.6-8.4	High---------	0.32		
FsB-------------- Freest	0-8	3-10	1.40-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28	5	.5-2
	8-24	10-25	1.40-1.50	0.2-0.6	0.15-0.18	4.5-6.0	Moderate-----	0.32		
	24-65	27-50	1.40-1.55	0.06-0.2	0.15-0.18	4.5-7.3	Moderate-----	0.28		
GdE3*:										
Gullied land----	0-60	---	---	---	---	---	-------------	----	---	---
Demopolis-------	0-7	17-35	1.35-1.60	0.2-0.6	0.10-0.17	7.4-8.4	Low----------	0.37	2	1-2
	7-14	20-35	1.40-1.65	0.2-0.6	0.03-0.06	7.4-8.4	Low----------	0.32		
	14-60	---	---	0.00-0.01	---	---	-------------	----		

See footnote at end of table.

Table 16.--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 K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
HaB-------------- Halso	0-7	6-20	1.30-1.60	0.6-2.0	0.11-0.15	3.6-5.5	Low----------	0.28	4	.5-2
	7-44	40-70	1.10-1.40	<0.06	0.12-0.18	3.6-5.5	High---------	0.32		
	44-65	---	---	<0.06	---	---	-------------	----		
HaD2------------- Halso	0-4	6-20	1.30-1.60	0.6-2.0	0.11-0.15	3.6-5.5	Low----------	0.28	4	.5-2
	4-50	40-70	1.10-1.40	<0.06	0.12-0.18	3.6-5.5	High---------	0.32		
	50-65	---	---	<0.06	---	---	-------------	----		
HbA*:										
Harleston-------	0-13	2-8	1.25-1.35	0.6-6.0	0.08-0.16	3.6-5.5	Low----------	0.20	5	2-5
	13-48	8-18	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.32		
	48-65	8-27	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.32		
Bigbee----------	0-5	4-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-1
	5-65	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.17		
HoA-------------- Houlka	0-6	25-40	1.45-1.65	0.6-2.0	0.18-0.22	4.5-5.5	Moderate-----	0.28	5	.5-2
	6-65	35-55	1.40-1.60	<0.06	0.18-0.20	4.5-5.5	High---------	0.32		
IzA-------------- Izagora	0-8	8-20	1.40-1.65	2.0-6.0	0.11-0.20	3.6-6.0	Low----------	0.28	5	.5-2
	8-32	18-30	1.40-1.60	0.6-2.0	0.12-0.20	3.6-5.5	Low----------	0.32		
	32-65	35-55	1.30-1.60	0.06-0.2	0.16-0.20	3.6-5.5	Moderate-----	0.32		
KpC-------------- Kipling	0-7	28-32	1.30-1.45	0.06-0.2	0.20-0.22	3.6-6.0	Moderate-----	0.32	5	.5-2
	7-41	36-60	1.37-1.41	0.06-0.2	0.10-0.15	3.6-8.4	High---------	0.32		
	41-65	40-60	1.57-1.60	<0.06	0.10-0.15	5.1-8.4	Very high----	0.32		
KuC*:										
Kipling---------	0-3	28-32	1.30-1.45	0.06-0.2	0.20-0.22	3.6-6.0	Moderate-----	0.32	5	.5-2
	3-43	36-60	1.37-1.41	0.06-0.2	0.10-0.15	3.6-8.4	High---------	0.32		
	43-65	40-60	1.57-1.60	<0.06	0.10-0.15	5.1-8.4	Very high----	0.32		
Urban land------	0-6	---	---	---	---	---	-------------	----	---	---
LaA-------------- Lucedale	0-8	1-10	1.40-1.55	0.6-2.0	0.15-0.20	5.1-6.5	Low----------	0.24	5	.5-2
	8-65	20-30	1.55-1.70	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.24		
LvB-------------- Luverne	0-6	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low----------	0.24	5	.5-2
	6-28	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	28-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
LvD2------------- Luverne	0-6	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low----------	0.24	5	.5-2
	6-37	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	37-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
MiA-------------- Minter	0-5	14-27	1.45-1.65	0.6-2.0	0.16-0.22	4.5-5.5	Low----------	0.37	5	1-3
	5-65	35-50	1.35-1.65	0.06-0.2	0.14-0.20	4.5-5.5	Moderate-----	0.32		
MKA*:										
Mooreville------	0-5	5-27	1.40-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	5	.5-2
	5-36	18-35	1.40-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Moderate-----	0.28		
	36-72	10-40	1.40-1.60	0.6-2.0	0.14-0.18	4.5-5.5	Moderate-----	0.28		
Mantachie-------	0-3	8-20	1.50-1.60	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.28	5	1-3
	3-65	18-34	1.50-1.60	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.28		
Kinston---------	0-3	5-18	1.40-1.60	2.0-6.0	0.13-0.19	4.5-6.0	Low----------	0.24	5	2-5
	3-65	18-35	1.30-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.32		

See footnote at end of table.

Table 16.--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 K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
OkC--------------	0-4	30-40	1.10-1.40	0.01-0.2	0.13-0.17	4.5-7.3	Moderate-----	0.32	5	2-7
Oktibbeha	4-13	60-80	1.00-1.30	0.01-0.06	0.10-0.15	3.5-5.5	Very high----	0.32		
	13-45	60-80	1.00-1.30	0.01-0.06	0.10-0.15	3.5-6.5	Very high----	0.32		
	45-80	50-70	1.10-1.40	0.01-0.06	0.05-0.10	6.6-8.4	Very high----	0.32		
OtD2-------------	0-2	40-60	1.10-1.40	0.01-0.06	0.12-0.16	4.5-7.3	High---------	0.32	5	2-7
Oktibbeha	2-20	60-80	1.00-1.30	0.01-0.06	0.10-0.15	3.5-5.5	Very high----	0.32		
	20-35	60-80	1.00-1.30	0.01-0.06	0.10-0.15	3.5-6.5	Very high----	0.32		
	35-65	50-70	1.10-1.40	0.01-0.06	0.05-0.10	6.6-8.4	Very high----	0.32		
Pt*--------------	0-60	---	---	---	---	---	-------------	----	---	---
Pits										
Qu*--------------	0-60	---	---	---	---	---	-------------	----	---	---
Quarry										
RvA--------------	0-10	4-18	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.5	Low----------	0.24	5	.5-2
Riverview	10-56	18-35	1.20-1.40	0.6-2.0	0.15-0.22	4.5-6.0	Low----------	0.24		
	56-65	4-18	1.20-1.50	0.6-2.0	0.07-0.11	4.5-6.0	Low----------	0.17		
SaA--------------	0-14	3-16	1.50-1.60	0.6-2.0	0.13-0.16	3.6-5.5	Low----------	0.24	4	.5-3
Savannah	14-27	18-32	1.45-1.65	0.6-2.0	0.11-0.17	3.6-5.5	Low----------	0.28		
	27-65	18-32	1.60-1.80	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.24		
ScC2-------------	0-8	8-18	1.40-1.65	0.6-2.0	0.10-0.15	3.6-6.0	Low----------	0.20	5	1-4
Searcy	8-31	40-55	1.40-1.65	0.06-0.2	0.12-0.20	3.6-6.0	Moderate-----	0.28		
	31-65	45-60	1.40-1.65	0.06-0.2	0.12-0.20	3.6-6.0	High---------	0.28		
SdC--------------	0-7	2-8	1.40-1.50	2.0-6.0	0.05-0.10	4.5-5.5	Low----------	0.17	5	.5-2
Smithdale	7-49	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	49-75	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
SdD--------------	0-12	2-8	1.40-1.50	2.0-6.0	0.05-0.10	4.5-5.5	Low----------	0.17	5	.5-2
Smithdale	12-30	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	30-72	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
SmF*:										
Smithdale-------	0-8	2-8	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.17	5	.5-2
	8-35	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	35-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
Boykin----------	0-35	1-12	1.30-1.70	6.0-20	0.05-0.10	5.1-6.0	Low----------	0.10	5	.5-1
	35-65	20-45	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28		
Luverne---------	0-9	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low----------	0.24	5	.5-2
	9-28	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	28-44	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.28		
	44-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
SnA*:										
Steens----------	0-13	8-14	1.50-1.55	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.28	5	1-3
	13-60	20-35	1.60-1.70	0.2-0.6	0.10-0.18	4.5-5.5	Low----------	0.20		
Yonges----------	0-8	10-20	1.30-1.60	0.6-2.0	0.11-0.15	5.1-7.8	Low----------	0.20	5	1-5
	8-65	10-35	1.30-1.50	0.6-2.0	0.12-0.16	6.1-8.4	Low----------	0.20		
Harleston-------	0-13	2-8	1.25-1.35	0.6-6.0	0.08-0.16	3.6-5.5	Low----------	0.20	5	2-5
	13-48	8-18	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.32		
	48-65	8-27	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.32		

See footnote at end of table.

Table 16.--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 K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
SrB-------------- Subran	0-7	10-27	1.40-1.65	0.6-2.0	0.12-0.18	4.5-6.5	Low----------	0.24	5	1-4
	7-48	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	48-65	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
StA-------------- Sucarnoochee	0-10	40-60	1.20-1.50	0.06-0.2	0.14-0.20	6.6-8.4	High---------	0.32	5	2-7
	10-18	40-60	1.00-1.30	<0.06	0.14-0.18	6.6-8.4	High---------	0.32		
	18-65	45-70	1.00-1.30	<0.06	0.12-0.18	6.6-8.4	High---------	0.32		
SuE2------------- Sumter	0-6	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	Moderate-----	0.37	3	2-5
	6-22	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	Moderate-----	0.37		
	22-60	---	---	0.00-0.01	---	---	-------------	----		
SwB*:										
Sumter----------	0-5	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	Moderate-----	0.37	3	2-5
	5-31	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	Moderate-----	0.37		
	31-60	---	---	0.00-0.01	---	---	-------------	----		
Watsonia--------	0-3	40-70	1.10-1.40	<0.06	0.12-0.16	4.5-6.5	High---------	0.32	2	2-5
	3-9	60-80	1.00-1.40	<0.06	0.12-0.16	4.5-6.5	High---------	0.32		
	9-17	50-70	1.00-1.40	<0.06	0.12-0.16	6.1-8.4	High---------	0.37		
	17-80	---	---	0.00-0.01	---	---	-------------	----		
SwC2*:										
Sumter----------	0-8	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	3	2-5
	8-28	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	28-60	---	---	0.00-0.01	---	---	-------------	----		
Watsonia--------	0-4	40-70	1.10-1.40	<0.06	0.12-0.16	4.5-6.5	High---------	0.32	2	2-5
	4-9	60-80	1.00-1.40	<0.06	0.12-0.16	4.5-6.5	High---------	0.32		
	9-17	50-70	1.00-1.40	<0.06	0.12-0.16	6.1-8.4	High---------	0.37		
	17-80	---	---	0.00-0.01	---	---	-------------	----		
TsA-------------- Tuscumbia	0-7	27-35	1.45-1.55	0.06-0.2	0.18-0.20	5.1-8.4	Moderate-----	0.32	5	1-5
	7-65	32-60	1.50-1.60	<0.06	0.18-0.20	5.1-8.4	High---------	0.28		
UnA-------------- Una	0-4	28-45	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High---------	0.32	5	1-5
	4-60	35-55	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High---------	0.28		
Ur*-------------- Urban land	0-6	---	---	---	---	---	-------------	----	---	---
UuB*:										
Urbo------------	0-8	12-35	1.40-1.50	0.06-0.2	0.19-0.21	4.5-5.5	Low----------	0.49	5	1-5
	8-65	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate-----	0.28		
Mooreville------	0-5	5-27	1.40-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	5	.5-2
	5-48	18-35	1.40-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Moderate-----	0.28		
	48-60	10-40	1.40-1.60	0.6-2.0	0.14-0.18	4.5-5.5	Moderate-----	0.28		
Una-------------	0-3	28-45	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High---------	0.32	5	1-5
	3-60	35-55	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High---------	0.28		
VdA-------------- Vaiden	0-4	40-60	1.10-1.40	0.06-0.2	0.10-0.15	4.5-6.5	High---------	0.32	5	1-5
	4-38	60-75	1.00-1.30	<0.06	0.10-0.15	4.5-6.5	Very high----	0.32		
	38-83	40-75	1.10-1.40	<0.06	0.10-0.15	6.6-8.4	Very high----	0.32		
WdD-------------- Wadley	0-57	2-12	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-1
	57-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20		

See footnote at end of table.

Table 16.--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 K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
WxB-------------- Wilcox	0-4	40-70	1.25-1.45	0.06-0.2	0.18-0.20	4.5-5.5	Very high----	0.37	4	.5-2
	4-53	60-85	1.25-1.35	<0.06	0.10-0.15	3.6-5.5	Very high----	0.28		
	53-65	---	---	<0.06	---	---	-------------	----		
WxD2------------- Wilcox	0-5	40-70	1.25-1.45	0.06-0.2	0.18-0.20	4.5-5.5	Very high----	0.37	4	.5-2
	5-46	60-85	1.25-1.35	<0.06	0.10-0.15	3.6-5.5	Very high----	0.28		
	46-65	---	---	<0.06	---	---	-------------	----		
YoA-------------- Yonges	0-7	7-18	1.30-1.60	0.6-2.0	0.11-0.14	5.1-7.8	Low----------	0.20	5	1-5
	7-30	18-40	1.30-1.60	0.2-0.6	0.13-0.18	5.1-8.4	Low----------	0.17		
	30-54	10-35	1.30-1.50	0.6-2.0	0.12-0.16	6.1-8.4	Low----------	0.20		
	54-65	---	---	---	---	---	-------------	----		

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 17.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
BaA, BaB---------- Bama	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
BbA*:											
Bibb-------------	D	Frequent----	Brief-----	Dec-Apr	0.5-1.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
Iuka-------------	C	Frequent----	Brief-----	Dec-Apr	1.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
BgB--------------- Bigbee	A	Occasional	Brief-----	Dec-Apr	3.5-6.0	Apparent	Jan-Mar	>60	---	Low------	Moderate.
BnB--------------- Bonneau	A	None--------	---	---	3.5-5.0	Perched	Jan-Mar	>60	---	Low------	High.
BoB--------------- Boykin	A	None--------	---	---	>6.0	---	---	>60	---	Low------	High.
BpE*:											
Boykin-----------	A	None--------	---	---	>6.0	---	---	>60	---	Low------	High.
Wadley-----------	A	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
BrC, BrD2--------- Brantley	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
BsF2*:											
Brantley---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Okeelala---------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
CaA--------------- Cahaba	B	Rare--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
CbA--------------- Cahaba	B	Occasional	Brief-----	Dec-Apr	>6.0	---	---	>60	---	Moderate	Moderate.
CcB--------------- Cahaba	B	Rare--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
ChB*:											
Chrysler---------	C	Occasional	Brief-----	Dec-Apr	1.5-3.0	Perched	Jan-Mar	>60	---	High-----	High.
Lenoir-----------	D	Occasional	Brief-----	Dec-Apr	1.0-2.5	Apparent	Dec-Apr	>60	---	High-----	High.
CoA--------------- Consul	D	None--------	---	---	0.5-1.5	Perched	Dec-Apr	>60	---	High-----	Moderate.
DeD2-------------- Demopolis	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	Low.
DuD*:											
Demopolis--------	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	Low.
Urban land-------	-	None--------	---	---	>2.0	---	---	>10	---	---	---

See footnote at end of table.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard-ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
FnB, FnC---------- Faunsdale	D	None--------	---	---	1.0-2.0	Perched	Jan-Mar	>60	---	High-----	Low.
FsB--------------- Freest	C	None--------	---	---	1.5-2.5	Perched	Jan-Mar	>60	---	High-----	High.
GdE3*:											
Gullied land-----	-	None--------	---	---	>6.0	---	---	>60	---	---	---
Demopolis--------	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	Low.
HaB, HaD2--------- Halso	D	None--------	---	---	>6.0	---	---	40-60	Soft	High-----	High.
HbA*:											
Harleston--------	C	Rare--------	---	---	2.0-3.0	Apparent	Jan-Mar	>60	---	Moderate	High.
Bigbee-----------	A	Rare--------	---	---	3.5-6.0	Apparent	Jan-Mar	>60	---	Low------	Moderate.
HoA--------------- Houlka	D	Frequent----	Brief-----	Dec-Apr	1.0-2.0	Perched	Dec-Mar	>60	---	High-----	High.
IzA--------------- Izagora	C	Rare--------	---	---	2.0-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
KpC--------------- Kipling	D	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	High-----	High.
KuC*:											
Kipling----------	D	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	High-----	High.
Urban land-------	-	None--------	---	---	>2.0	---	---	>10	---	---	---
LaA--------------- Lucedale	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
LvB, LvD2--------- Luverne	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
MiA--------------- Minter	D	Occasional	Brief-----	Dec-Apr	0-1.0	Apparent	Dec-Apr	>60	---	High-----	High.
MKA*:											
Mooreville-------	C	Frequent----	Brief-----	Dec-Apr	1.5-3.0	Apparent	Dec-Mar	>60	---	Moderate	High.
Mantachie--------	C	Frequent----	Brief-----	Dec-Apr	1.0-1.5	Apparent	Dec-Apr	>60	---	High-----	High.
Kinston----------	D	Frequent----	Brief-----	Dec-Apr	0-1.0	Apparent	Dec-Apr	>60	---	High-----	High.
OkC, OtD2--------- Oktibbeha	D	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Pt*--------------- Pits	-	None--------	---	---	>6.0	---	---	>60	---	---	---
Qu*--------------- Quarry	-	None--------	---	---	>6.0	---	---	0	Soft	---	---

See footnote at end of table.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard-ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
RvA--------------- Riverview	B	Occasional	Brief-----	Dec-Apr	3.0-5.0	Apparent	Dec-Apr	>60	---	Low------	Moderate.
SaA--------------- Savannah	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
ScC2-------------- Searcy	C	None--------	---	---	2.0-3.5	Perched	Jan-Mar	>60	---	High-----	High.
SdC, SdD---------- Smithdale	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
SmF*:											
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Boykin-----------	A	None--------	---	---	>6.0	---	---	>60	---	Low------	High.
Luverne----------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
SnA*:											
Steens-----------	C	None--------	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	Low------	High.
Yonges-----------	D	None--------	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
Harleston--------	C	None--------	---	---	2.0-3.0	Apparent	Jan-Mar	>60	---	Moderate	High.
SrB--------------- Subran	C	None--------	---	---	2.0-3.5	Perched	Jan-Mar	>60	---	High-----	High.
StA--------------- Sucarnoochee	D	Frequent----	Brief-----	Dec-Apr	0.5-1.5	Perched	Jan-Apr	>60	---	High-----	Low.
SuE2-------------- Sumter	C	None--------	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
SwB*, SwC2*:											
Sumter-----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
Watsonia---------	D	None--------	---	---	>6.0	---	---	10-20	Soft	High-----	High.
TsA--------------- Tuscumbia	D	Frequent----	Brief-----	Dec-Apr	0.5-1.5	Perched	Dec-Apr	>60	---	High-----	Low.
UnA--------------- Una	D	Frequent----	Very long	Jan-Dec	+2-0.5	Perched	Dec-Jun	>60	---	High-----	High.
Ur*--------------- Urban land	-	None--------	---	---	>2.0	---	---	>10	---	---	---
UuB*:											
Urbo-------------	D	Frequent----	Brief-----	Dec-Apr	1.0-2.0	Perched	Dec-Mar	>60	---	High-----	High.
Mooreville-------	C	Frequent----	Brief-----	Dec-Apr	1.5-3.0	Apparent	Dec-Mar	>60	---	Moderate	High.
Una--------------	D	Frequent----	Long------	Dec-Apr	+2-0.5	Perched	Dec-Jun	>60	---	High-----	High.

See footnote at end of table.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
VdA--------------- Vaiden	D	None--------	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High-----	High.
WdD--------------- Wadley	A	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
WxB, WxD2--------- Wilcox	D	None--------	---	---	>6.0	---	---	40-60	Soft	High-----	High.
YoA--------------- Yonges	D	Occasional	Brief-----	Dec-Apr	0-1.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 18.--Physical Analyses of Selected Soils

Soil name and sample number	Depth	Horizon	Particle-size distribution (Percent less than 2.0 mm)		
			Sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)
	In				
Cahaba [1, 9]:					
(S83AL-091-16)	0-9	Ap	69.1	19.0	11.9
	9-27	Bt1	49.2	29.7	21.1
	27-46	Bt2	61.7	21.9	16.4
	46-65	C	71.4	15.5	13.1
Chrysler [2, 9]:	0-3	Ap	25.1	61.1	13.8
(S84AL-091-26)	3-6	E	26.2	60.0	13.8
	6-18	Bt1	15.1	48.5	36.4
	18-24	Bt2	12.3	43.1	44.6
	24-42	Bt3	10.3	36.9	52.8
	42-65	Bt4	13.8	34.9	51.3
Consul [3, 10]:					
(S87AL-091-001)	0-5	Ap	5.5	29.3	65.2
	5-18	Bssg1	3.3	18.5	78.2
	18-28	Bssg2	3.5	16.3	80.2
	28-42	Bssg3	2.8	15.7	81.5
	42-65	Bssg4	3.1	14.2	82.7
Consul [2, 10]:					
(S87AL-091-002)	0-6	Ap	9.2	28.0	62.8
	6-20	Bssg1	3.7	19.9	76.4
	20-40	Bssg2	3.0	18.6	78.4
	40-52	Bssg3	2.6	15.0	82.4
	52-80	Cr	1.4	19.5	79.1
Faunsdale [2, 9]:					
(S82AL-091-5)	0-5	Ap	23.9	47.7	28.4
	5-14	A	17.9	40.5	41.6
	14-30	Bss	21.4	41.2	37.4
	30-51	Bkss1	18.2	39.8	42.0
	51-68	Bkss2	16.7	38.0	45.3
	68-90	C	14.1	36.4	49.5
Faunsdale [4, 9]:					
(S82AL-091-6)	0-12	Ap	9.6	52.0	38.4
	12-26	Bkss1	8.6	44.0	47.4
	26-50	Bkss2	9.4	40.7	49.9
	50-62	Bkss3	9.1	36.4	54.5
Izagora [5, 9]:					
(S88AL-091-1)	0-7	Ap	43.0	49.6	7.4
	7-15	Bt1	31.6	46.0	22.4
	15-21	Bt2	35.5	43.7	20.8
	21-39	Bt3	33.5	35.7	30.8
	39-67	Bt4	31.1	28.5	40.4

Table 18.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution (Percent less than 2.0 mm)		
			Sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)
	In				
Luverne [6, 9]:					
(S89AL-091-5)	0-5	Ap	68.0	26.4	5.6
	5-12	E	62.1	30.8	7.1
	12-32	Bt1	38.0	23.3	38.7
	32-43	Bt2	41.0	27.6	31.4
	43-65	C	50.2	20.7	29.1
Minter [2, 9]:					
(S84AL-091-24)	0-5	Ap	49.6	30.5	19.9
	5-10	Btg1	32.4	35.0	32.6
	10-20	Btg2	24.9	36.8	38.3
	20-55	Btg3	41.6	27.6	30.8
	55-65	Btg4	46.2	22.0	31.8
Oktibbeha [2, 10]:					
(S91AL-091-003)	0-4	Ap	29.3	34.1	36.6
	4-9	Bt1	15.6	26.9	57.5
	9-13	Bt2	9.2	23.8	67.0
	13-34	Btss1	9.5	23.6	66.9
	34-45	Btss2	10.9	25.3	63.8
	45-62	Bkss1	6.8	40.2	53.0
	62-80	Bkss2	9.3	33.3	57.4
Smithdale [2, 9]:					
(S89AL-091-4)	0-7	Ap	80.2	15.9	3.9
	7-49	Bt1	50.1	24.9	25.0
	49-69	Bt2	65.1	16.4	18.5
	69-75	Bt3	70.2	16.7	13.1
Sucarnoochee [7, 9]:					
(S81AL-091-1)	0-10	Ap	20.1	35.0	44.9
	10-22	AB	12.8	36.6	50.6
	22-48	Bss1	14.4	35.0	50.6
	48-65	Bss2	14.4	36.2	49.4
Sumter [2, 9]:					
(S82AL-091-8)	0-5	Ap	19.0	51.9	29.1
	5-10	Bk1	10.6	48.2	41.2
	10-23	Bk2	11.3	45.9	42.8
	23-31	Bk3	11.6	42.1	46.3
Vaiden [2, 10]:					
(S91AL-091-002)	0-4	Ap	7.2	38.5	54.3
	4-10	Bt	4.7	28.1	67.2
	10-24	Btss1	4.0	27.5	68.5
	24-38	Btss2	3.7	28.8	67.5
	38-55	Bkss1	3.3	29.1	67.6
	55-65	Bkss2	4.2	29.5	66.3
	65-84	Bkss3	3.6	29.4	67.0

Table 18.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution (Percent less than 2.0 mm)		
			Sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)
	In				
Yonges [8, 9]:					
(S91AL-091-3)	0-3	Ap	42.8	36.0	21.2
	3-7	E	53.4	26.4	20.2
	7-21	Btg1	48.6	24.2	27.2
	21-37	Btg2	40.0	23.5	36.5
	37-52	BCg	37.4	23.9	38.7
	52-60	Cg	38.4	23.8	37.8

[1] This pedon is in an area of Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded. It is not the typical pedon for this map unit. It is about 1,400 feet east and 2,600 feet north of the southwest corner of sec. 36, T. 17 N., R. 1 E.

[2] This is the typical pedon for the series in Marengo County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

[3] This pedon is in an area of Consul clay, 0 to 2 percent slopes. It is not the typical pedon for this map unit. It is about 1,900 feet west and 1,200 feet south of the northeast corner of sec. 15, T. 14 N., R. 5 E.

[4] This pedon is in an area of Faunsdale clay loam, 3 to 5 percent slopes. It is not the typical pedon for this map unit. It is about 2,250 feet west and 1,300 feet north of the southeast corner of sec. 26, T. 17 N., R. 1 E.

[5] This pedon is in an area of Izagora sandy loam, 0 to 2 percent slopes, rarely flooded. It is not the typical pedon for this map unit. It is about 1,300 feet west and 500 feet north of the southeast corner of sec. 11, T. 17 N., R. 1 E.

[6] This pedon is in area of Luverne sandy loam, 5 to 15 percent slopes, eroded. It is not the typical pedon for this map unit. It is about 2,500 feet west and 2,300 feet south of the northwest corner of sec. 14, T. 13 N., R. 1 E.

[7] This pedon is in an area of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded. It is not the typical pedon for this map unit. It is about 1,800 feet east and 1,800 south of the northeast corner of sec. 19, T. 17 N., R. 4 E.

[8] This pedon is in an area of Steens-Yonges-Harleston complex, 0 to 2 percent slopes. It is not the typical pedon for this map unit. It is about 800 feet west and 1,000 feet north of the southeast corner of sec. 15, T. 16 N., R. 4 E.

[9] Analyses by the Agronomy and Soils Clay Mineralogy Laboratory, Auburn University, Auburn, Alabama.

[10] Analyses by the National Soil Survey Laboratory, Natural Resources Conservation Service.

Table 19.--Chemical Analyses of Selected Soils

(TR indicates trace. Dashes indicate that data were not available)

Soil name and sample number	Depth	Horizon	Extractable bases				Extractable acidity	Cation-exchange capacity	Base saturation	Reaction
			Ca	K	Mg	Na				
	In		Meq 100g				Meq 100g	Meq 100g	Pct	pH
Cahaba [1, 9]:										
(S83AL-091-16)	0-9	Ap	2.3	0.2	0.7	---	1.9	5.2	62	5.6
	9-27	Bt1	1.9	0.1	0.8	---	2.8	5.7	50	5.1
	27-46	Bt2	0.4	0.1	0.4	---	2.6	3.4	23	4.7
	46-65	C	0.4	0.03	0.2	---	1.5	2.1	28	4.5
Chryler [2, 9]:										
(S84AL-091-26)	0-3	Ap	3.1	0.2	0.7	---	5.2	9.2	43	4.7
	3-6	E	1.6	0.1	0.6	---	3.0	5.3	43	4.9
	6-18	Bt1	2.1	0.1	0.9	---	3.7	6.8	45	4.9
	18-24	Bt2	1.2	0.1	0.9	---	6.6	8.7	24	4.9
	24-42	Bt3	0.6	0.1	1.2	---	9.6	11.4	15	4.9
	42-65	Bt4	0.6	0.1	1.5	---	10.2	12.3	17	4.8
Consul [3, 10]:										
(S87AL-091-001)	0-5	Ap	27.8	1.3	11.5	0.2	14.8	47.8	73	5.2
	5-18	Bssg1	24.0	1.0	13.9	0.4	17.7	51.1	69	4.8
	18-28	Bssg2	23.3	0.7	13.7	0.8	19.2	52.7	67	5.0
	28-42	Bssg3	27.3	0.8	15.4	1.0	14.4	54.8	76	5.2
	42-65	Bssg4	---	1.1	17.6	1.7	---	55.3	100	7.6
Consul [2, 10]:										
(S87AL-091-002)	0-6	Ap	34.8	1.0	14.1	0.2	7.6	51.8	87	7.3
	6-20	Bssg1	34.2	0.7	10.2	0.7	17.1	56.2	73	4.7
	20-40	Bssg2	34.6	0.9	11.5	1.0	14.3	58.8	77	4.8
	40-52	Bssg3	52.0	0.9	13.3	1.5	5.6	61.9	92	7.2
	52-80	Cr	---	1.0	11.3	1.6	---	46.7	100	7.9
Faunsdale [2, 9]:										
(S82AL-091-5)	0-5	Ap	30.4	0.1	0.7	---	2.5	33.7	92	7.2
	5-14	A	19.1	0.1	0.3	---	3.0	22.4	86	7.2
	14-30	Bss	15.6	0.1	0.3	---	2.2	18.2	87	7.5
	30-51	Bkss1	24.5	0.1	0.4	---	2.8	27.7	89	7.6
	51-68	Bkss2	28.1	0.1	0.6	---	2.1	30.8	93	7.7
	68-90	C	34.2	0.1	0.6	---	1.8	36.6	95	7.9
Faunsdale [4, 9]:										
(S82AL-091-6)	0-12	Ap	33.4	0.1	0.3	---	1.8	35.6	94	7.7
	12-26	Bkss1	28.5	0.1	0.1	---	2.9	31.6	90	7.7
	26-50	Bkss2	23.8	0.1	0.1	---	3.8	27.8	86	7.6
	50-62	Bkss3	27.5	0.1	0.2	---	2.7	30.5	91	7.8
Izagora [5, 9]:										
(S88AL-091-1)	0-7	Ap	1.4	0.2	0.6	0.1	0.1	4.0	59	6.2
	7-15	Bt1	1.4	0.1	0.4	0.1	3.0	7.2	29	5.1
	15-21	Bt2	1.0	0.2	0.3	0.1	3.4	6.5	27	5.0
	21-39	Bt3	0.5	0.1	0.6	0.1	8.8	11.5	14	4.8
	39-67	Bt4	0.1	0.2	0.8	0.2	15.7	18.0	8	4.9

Table 19.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Extractable bases				Extractable acidity	Cation-exchange capacity	Base saturation	Reaction
			Ca	K	Mg	Na				
	In		Meq 100g				Meq 100g	Meq 100g	Pct	pH
Luverne [6, 9]:										
(S82AL-091-5)	0-5	Ap	0.3	0.2	0.1	0.1	1.2	3.6	22	4.9
	5-12	E	0.3	0.3	0.1	0.1	0.7	2.0	37	5.2
	12-32	Bt1	0.7	0.5	2.0	0.1	3.7	9.0	42	4.9
	32-43	Bt2	0.1	0.3	1.4	0.1	6.3	9.7	25	4.8
	43-65	C	0.1	0.6	1.0	0.1	6.1	8.9	24	4.7
Minter [2, 9]:										
(S84AL-091-24)	0-5	Ap	0.6	0.1	0.3	---	3.4	4.4	22	5.5
	5-10	Btg1	0.4	0.1	0.1	---	5.8	6.3	8	4.7
	10-20	Btg2	3.9	0.1	1.2	---	8.0	13.3	39	4.7
	20-55	Btg3	3.4	0.1	1.3	---	6.1	10.9	44	4.6
	55-65	Btg4	4.4	0.1	1.4	---	5.8	11.7	50	4.7
Oktibbeha [2, 10]:										
(S91AL-091-003)	0-4	Ap	22.2	0.7	3.3	0.3	10.1	27.7	72	6.3
	4-9	Bt1	19.8	0.4	4.0	0.4	14.7	34.8	63	5.0
	9-13	Bt2	23.8	0.4	4.4	0.4	19.5	41.5	60	5.0
	13-34	Btss1	27.9	0.4	4.2	0.5	13.4	41.8	71	4.8
	34-45	Btss2	36.8	0.4	3.5	0.6	5.7	41.5	88	6.5
	45-62	Bkss1	---	0.1	3.5	0.9	---	40.6	100	7.8
	62-80	Bkss2	---	0.3	3.5	1.3	---	27.8	100	8.0
Smithdale [2, 9]:										
(S82AL-091-4)	0-7	Ap	0.2	0.1	0.1	0.1	0.5	1.7	27	5.0
	7-49	Bt1	1.5	0.4	1.7	0.1	0.9	6.0	50	5.4
	49-69	Bt2	0.1	0.1	0.6	0.1	1.9	3.5	22	4.7
	69-75	Bt3	0.1	0.1	0.3	0.1	1.5	2.5	18	4.9
Sucarnoochee [7, 9]										
(S82AL-091-1)	0-10	Ap	33.2	0.1	0.2	---	3.3	36.8	91	7.7
	10-22	AB	30.0	0.1	0.1	---	3.3	33.5	90	7.5
	22-48	Bss1	27.5	0.1	0.1	---	3.2	30.9	89	7.7
	48-65	Bss2	25.0	0.1	0.1	---	3.4	28.6	88	7.7
Sumter [2, 9]:										
(S82AL-091-8)	0-5	Ap	33.6	0.1	0.4	---	10.6	44.8	76	7.6
	5-10	Bk1	34.7	0.02	0.1	---	1.8	36.6	95	8.1
	10-23	Bk2	29.5	0.02	0.1	---	2.2	31.8	93	7.8
	23-31	Bk3	29.3	0.03	0.2	---	1.8	31.4	94	7.8
Vaiden [2, 10]:										
(S91AL-091-002)	0-4	Ap	38.7	0.3	3.4	TR	8.1	45.4	84	6.0
	4-10	Bt	24.5	0.3	2.7	0.1	22.1	45.3	56	4.7
	10-24	Btss1	25.4	0.2	3.0	0.2	20.8	47.0	58	4.7
	24-38	Btss2	30.7	0.4	3.3	---	12.8	47.7	73	4.9
	38-55	Bkss1	35.7	0.4	3.5	0.5	3.6	48.9	92	6.1
	55-65	Bkss2	42.8	0.3	4.3	0.6	---	17.7	100	7.4
	65-84	Bkss3	46.1	0.4	3.8	0.6	5.8	8.0	90	7.7

Table 19.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Extractable bases				Extractable acidity	Cation-exchange capacity	Base saturation	Reaction
			Ca	K	Mg	Na				
	In		---------Meq 100g---------				-Meq 100g----	-Meq 100g-	Pct	pH
Yonges [8], [9]:										
(S90AL-091-3)	0-3	Ap	14.1	0.8	4.1	0.1	0.3	23.7	88	6.3
	3-7	E	4.8	0.2	0.6	0.1	0.5	12.0	67	5.4
	7-21	Btg1	10.1	0.2	0.4	0.2	0.5	14.2	79	5.5
	21-37	Btg2	12.2	0.7	0.8	0.3	0.5	18.9	82	5.3
	37-52	BCg	21.4	0.5	1.0	0.6	0.0	19.9	92	6.4
	52-60	Cg	14.1	0.4	1.1	0.7	0.0	20.3	92	6.9

[1] This pedon is in an area of Cahaba fine sandy loam, 0 to 2 percent slopes, rarely flooded. It is not the typical pedon for this map unit. It is about 1,400 feet east and 2,600 feet north of the southwest corner of sec. 36, T. 17 N., R. 1 E.

[2] This is the typical pedon for the series in Marengo County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

[3] This pedon is in an area of Consul clay, 0 to 2 percent slopes. It is not the typical pedon for this map unit. It is about 1,900 feet west and 1,200 feet south of thenortheast corner of sec. 15, T. 14 N., R. 5 E.

[4] This pedon is in an area of Faunsdale clay loam, 3 to 5 percent slopes. It is not the typical pedon for this map unit. It is about 2,250 feet west and 1,300 feet north of the southeast corner of sec. 26, T. 17 N., R. 1 E.

[5] This pedon is in an area of Izagora sandy loam, 0 to 2 percent slopes, rarely flooded. It is not the typical pedon for this map unit. It is about 1,300 feet west and 500 feet north of the southeast corner of sec. 11, T. 17 N., R. 1 E.

[6] This pedon is in area of Luverne sandy loam, 5 to 15 percent slopes, eroded. It is not the typical pedon for this map unit. It is about 2,500 feet west and 2,300 feet south of the northwest corner of sec. 14, T. 13 N., R. 1 E.

[7] This pedon is in an area of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded. It is not the typical pedon for this map unit. It is about 1,800 feet east and 1,800 south of the northeast corner of sec. 19, T. 17 N., R. 4 E.

[8] This pedon is in an area of Steens-Yonges-Harleston complex, 0 to 2 percent slopes. It is not the typical pedon for this map unit. It is about 800 feet west and 1,000 feet north of the southeast corner of sec. 15, T. 16 N., R. 4 E.

[9] Analyses by the Agronomy and Soils Clay Mineralogy Laboratory, Auburn University, Auburn, Alabama.

[10] Analyses by the National Soil Survey Laboratory, Natural Resources Conservation Service.

Table 20.--Classification of the Soils

Soil name	Family or higher taxonomic class
Bama	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Bibb	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Bigbee	Thermic, coated Typic Quartzipsamments
Bonneau	Loamy, siliceous, semiactive, thermic Arenic Paleudults
Boykin	Loamy, siliceous, active, thermic Arenic Paleudults
Brantley	Fine, mixed, active, thermic Ultic Hapludalfs
Cahaba	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Chrysler	Fine, mixed, semiactive, thermic Aquic Paleudults
Consul	Very-fine, smectitic, thermic Chromic Dystraquerts
Demopolis	Loamy, carbonatic, thermic, shallow Typic Udorthents
Faunsdale	Fine, smectitic, thermic Aquic Hapluderts
Freest	Fine-loamy, siliceous, active, thermic Aquic Paleudalfs
Halso	Fine, smectitic, thermic Vertic Hapludults
Harleston	Coarse-loamy, siliceous, semiactive, thermic Aquic Paleudults
Houlka	Fine, smectitic, thermic Aeric Epiaquerts
Iuka	Coarse-loamy, siliceous, active, acid, thermic Aquic Udifluvents
Izagora	Fine-loamy, siliceous, semiactive, thermic Aquic Paleudults
Kinston	Fine-loamy, siliceous, semiactive, acid, thermic Typic Fluvaquents
Kipling	Fine, smectitic, thermic Vertic Paleudalfs
Lenoir	Fine, mixed, semiactive, thermic Aeric Paleaquults
Lucedale	Fine-loamy, siliceous, subactive, thermic Rhodic Paleudults
Luverne	Fine, mixed, semiactive, thermic Typic Hapludults
Mantachie	Fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts
Minter	Fine, mixed, semiactive, thermic Typic Endoaqualfs
Mooreville	Fine-loamy, siliceous, active, thermic Fluvaquentic Dystrochrepts
Okeelala	Fine-loamy, siliceous, semiactive, thermic Ultic Hapludalfs
Oktibbeha	Very-fine, smectitic, thermic Chromic Dystruderts
Riverview	Fine-loamy, mixed, active, thermic Fluventic Dystrochrepts
Savannah	Fine-loamy, siliceous, semiactive, thermic Typic Fragiudults
Searcy	Fine, mixed, active, thermic Aquic Paleudalfs
Smithdale	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Steens	Fine-loamy, siliceous, semiactive, thermic Aeric Endoaqualfs
Subran	Fine, mixed, semiactive, thermic Aquic Paleudults
Sucarnoochee	Fine, smectitic, thermic Chromic Epiaquerts
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrochrepts
Tuscumbia	Fine, mixed, active, nonacid, thermic Vertic Epiaquepts
Una	Fine, mixed, active, acid, thermic Typic Epiaquepts
Urbo	Fine, mixed, active, acid, thermic Vertic Epiaquepts
Vaiden	Very-fine, smectitic, thermic Aquic Dystruderts
Wadley	Loamy, siliceous, subactive, thermic Grossarenic Paleudults
Watsonia	Clayey, smectitic, thermic Leptic Hapluderts
Wilcox	Very-fine, smectitic, thermic Chromic Dystruderts
Yonges	Fine-loamy, mixed, active, thermic Typic Endoaqualfs

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