United States
Department of
Agriculture

Natural
Resources
Conservation
Service

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

Soil Survey of Perry 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.

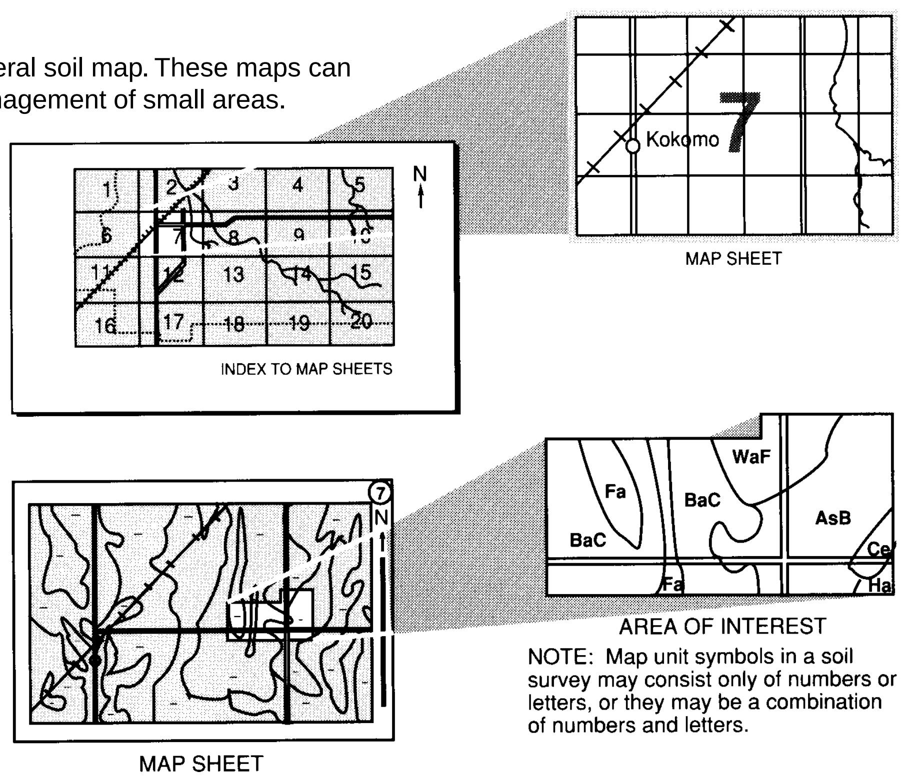
Detailed Soil Maps

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.



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

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

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1991. This survey was made cooperatively by the Natural Resources Conservation Service, the Alabama Agricultural Experiment Station, the Alabama Cooperative Extension Service, 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 Perry County Soil and Water Conservation District.

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

Cover: Cattle grazing a tall fescuegrass pasture in an area of Annemaine silt loam, 0 to 2 percent slopes, rarely flooded. This soil is used mainly for pasture and cultivated crops.

Contents

Foreword

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

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

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

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

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of
Perry County, Alabama

By MacArthur C. Harris, Natural Resources Conservation Service

Fieldwork by MacArthur C. Harris, Rex H. Chandler, Lawrence E. McGhee, and Edward J. Russell, Natural Resources Conservation Service

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

PERRY COUNTY is in the west-central part of Alabama (fig. 1). It is bounded on the north by Bibb County, on the east by Chilton County, on the west by Marengo and Hale Counties, and on the south by Dallas County. Marion, the county seat, is near the center of the county. It is about 85 miles northwest of Montgomery. The total area of the county is 459,800 acres. About 458,600 acres of this total consists of land areas and small areas of water, and about 1,200 acres consists of large areas of water in the form of lakes and rivers.

Perry County is mostly rural, and it had a population of 14,872 in 1980. Marion had a population of 4,457 in 1980 *(13)*. The main communities in the county are Marion and Uniontown. Marion Military Institute and Judson College are located in the city of Marion.

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

Perry County is comprised of three distinct physiographic regions—the Blackland Prairie, the Coastal Plain uplands, and the river terraces. The elevation ranges from about 100 feet above sea level in the southern part of the county to about 600 feet in the northern part.

The Blackland Prairie is in about 130,000 acres of the southern part of the county. It is used mostly for pasture, hay, cultivated crops, and the production of catfish. The landscape is mostly nearly level to gently sloping, and it has little relief. The soils range from shallow to very deep and 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 Coastal Plain uplands are in the northern and central parts of the county. Most areas are used for woodland. A small acreage is used for pasture, hay, or cultivated crops. The landscape ranges from broad, nearly level ridgetops to highly dissected, hilly topography. The soils are generally very deep and developed in unconsolidated, loamy and clayey sediments. They range in texture from loamy to clayey and are acid in reaction. Most of the soils in the uplands are well drained or moderately well drained.

The river terraces and associated flood plains are on about 50,000 acres in Perry County, mostly along the Cahaba River. 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 low terraces and flood plains that have little relief. The soils are very deep and developed in stratified, loamy and clayey alluvium. They range in texture from loamy to clayey and are acid in reaction. The soils range from well drained to poorly drained. Most areas are subject to flooding.

This soil survey updates the earlier surveys of Perry County published in 1902 *(6)* and in 1933 *(12)*. 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 Perry County. It describes climate, early history,

Figure 1.—Location of Perry County in Alabama.

agriculture, transportation facilities, geology, water resources, and mineral resources.

Climate

Perry 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 Marion Junction in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 46 degrees F and the average daily minimum temperature is 34 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -1 degree. In summer, the average temperature is 79 degrees and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred on July 15, 1952, is 108 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 54 inches. Of this, 28 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 12 inches. The heaviest 1-day rainfall during the period of record was 7.6 inches on April 6, 1964. Thunderstorms occur on about 59 days each year, and most occur in summer.

The average seasonal snowfall is about 0.3 inches. The greatest snow depth at any one time during the period of record was 4 inches. On the average, less than 1 day has at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 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 miles per hour, in March.

Early History

Perry County was created by an act of the Alabama legislature on December 13, 1819, from parts of Montgomery County and other areas in the Alabama Territory. It was named for Commodore Oliver Hazard Perry, who was a hero of the War of 1812. The Creek and the Cherokee were the principal Indian tribes. Along with the Chickasaw and Choctaw tribes, they held land in the county until 1838, when they ceded their land to the United States and were relocated to western reservations *(12)*.

The early European settlers were mostly from the lower Atlantic and Eastern Gulf States. The first farms were established on the smooth uplands in the vicinity of present-day Marion and on terraces along the Cahaba River. Early occupations included raising livestock, farming, and logging *(12)*.

Agriculture

Agriculture has always been an important part of the economy of Perry County. The early agricultural activities were mainly the production of subsistence crops, mainly corn, wheat, and rice; hogs and cattle; and vegetables, tobacco, and indigo. Cotton was grown as early as 1772. It became the main cash crop, and it was grown on nearly all of the well drained sites in the county. The production of cotton continued to increase until it was restricted by the appearance of the cotton bollweevil in about 1914. In 1899, approximately 90,000 acres was planted to cotton *(12)*. This acreage has decreased to about 37,000 acres in 1990 *(1)*.

The arrival of the cotton bollweevil had an important effect on agriculture. The decrease in cotton production resulting from the insect was so severe that farmers were forced to diversify their crops. As a result, the acreage used for other crops, such as corn, sweet potatoes, and peanuts, and the acreage used for hay and pasture greatly increased. The sale of dairy products also increased. Currently, the main cultivated crops are cotton, corn, soybeans, grain sorghum, and wheat.

In recent years, the acreage of cultivated crops has gradually decreased, and the acreage used for catfish ponds, pasture, and pine woodland has increased. 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 Perry County. Large acreages of loblolly pine and longleaf pine are in the central and northern parts of the county.

Transportation Facilities

The major highways that provide access through Perry County include U.S. Highway 80, which runs east-west through Uniontown; Alabama Highway 14, which runs east-west through Marion; Alabama Highway 5, which runs north-south through Marion; and Alabama Highway 219, which runs north-south through the eastern part of the county. Numerous other hard-surfaced state and county roads provide access throughout the county.

Perry County is served by one railroad, which provides freight service to Marion and Uniontown. Daily passenger and parcel service is provided by major bus services. Small airports near Uniontown and Marion serve small private and commercial aircraft. The county has no navigable waterways.

Geology

The geologic units exposed in Perry County include deposits in the Upper Cretaceous, Pleistocene, and Holocene series. They are sedimentary in origin and consist mainly of sand, gravel, silt, clay, sandstone, and soft limestone (chalk).

The Upper Cretaceous series includes, in ascending order, the Coker and Gordo Formations of the Tuscaloosa Group and the Eutaw Formation, the Mooreville Chalk, the Demopolis Chalk, and the Ripley Formation of the Selma Group. The Upper Cretaceous series is underlain by the Lower Cretaceous series. The thickness of the Lower Cretaceous series ranges from about 100 feet at Ellards, in the northern part of the county, to more than 1,000 feet in the vicinity of Uniontown in the southwestern part of the county.

The high terrace deposits of the Pleistocene series are along the Cahaba River and Oakmulgee Creek. Low terrace deposits and alluvium of the Pleistocene and Holocene series are in most of the stream valleys throughout the county *(10)*.

Water Resources

Perry County has an adequate, although limited, amount of surface water suitable for domestic and recreational uses. The main streams in the county are the Cahaba River, Bogue Chitto Creek, Brush Creek, Little Oakmulgee Creek, Oakmulgee Creek, Old Town Creek, and Washington Creek. Numerous small lakes and ponds provide water for livestock and recreational uses. The Cahaba River, which flows from north to south through the center of the county, is suitable for fishing, swimming, and canoeing.

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 Prairie area. Artesian wells are common on the terraces adjacent to the Cahaba River, and springs are common in the uplands.

Mineral Resources

The economically important minerals in Perry County include sand, gravel, and soft limestone (chalk). Sand and gravel are present in terrace deposits along the major streams. Extensive deposits of soft limestone are in the southern part of the county. These deposits serve as a source of agricultural lime and are used in the manufacture of cement *(10)*.

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, all 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.

Soil 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 surveys of Perry County, published in 1902 *(6)* and 1933 *(12)*, and the "Geology of Perry County, Alabama" *(10)* were among the references used.

Before the fieldwork 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 the soil patterns *(9, 11)*. 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.

Orthophotography base maps at a scale of 1:24,000 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 cartographic technicians prior to the final map-finishing process.

General Soil Map Units

The general soil map at the back of this survey 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* in table 4. 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 Perry County were matched, where possible, with those of the previously completed surveys of Chilton and Dallas 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. Sumter-Kipling-Sucarnoochee

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

Setting

Location in the survey area: Southwestern part
Landscape: Blackland Prairie
Landform: Sumter and Kipling—uplands; Sucarnoochee—flood plains
Landform position: Sumter—higher, convex parts of ridgetops and on side slopes; Kipling—lower, gently sloping ridgetops; Sucarnoochee—plane to slightly concave slopes
Slope range: 0 to 8 percent

Composition

Percent of the survey area: 8
Sumter soils: 41 percent
Kipling soils: 37 percent
Sucarnoochee soils: 12 percent
Minor soils: 10 percent (includes Demopolis, Oktibbeha, Vaiden, and Watsonia soils)

Soil Characteristics

Sumter soils

Surface layer: Dark grayish brown silty clay loam
Subsoil: Upper part—light brownish gray silty clay loam that has few concretions and common soft masses of calcium carbonate; lower part—pale yellow silty clay loam that has many fine concretions and 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 8 percent
Parent material: Alkaline, loamy and clayey residuum derived from soft limestone (chalk)

Kipling soils

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

Drainage class: Somewhat poorly drained
Depth to seasonal high water table: Perched, at a depth of 1.5 to 3 feet from January to April
Slope range: 1 to 5 percent
Parent material: Clayey marine sediments

Sucarnoochee soils

Surface layer: Dark grayish brown clay
Subsurface layer: Very dark gray clay that has olive mottles
Subsoil: Upper part—dark grayish brown clay that has brownish mottles; next part—dark grayish brown clay that has grayish and brownish mottles; lower part—mottled dark grayish brown, light olive brown, and yellowish 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

Minor soils

- The shallow Demopolis and Watsonia soils on crests of ridges and on steeper slopes
- The moderately well drained Oktibbeha soils on convex slopes
- Areas of poorly drained soils in depressions on flood plains

Use and Management

Major uses: Cultivated crops, pasture, and hayland

Cropland

Management concerns: Sumter—poor tilth and erodibility; Kipling—wetness, poor tilth, and erodibility; Sucarnoochee—wetness, poor tilth, and flooding

Pasture and hayland

Management concerns: Sumter—droughtiness; Kipling—wetness; Sucarnoochee—wetness and flooding

Woodland

Management concerns: Seedling mortality rate, restricted use of equipment, and competition from undesirable plants

Urban development

Management concerns: Sumter—restricted permeability, shrink-swell potential, and depth to rock; Kipling—restricted permeability, shrink-swell potential, and wetness; Sucarnoochee—flooding, wetness, restricted permeability, and shrink-swell potential

2. Vaiden-Okolona-Sucarnoochee

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

Setting

Location in the survey area: Southwestern part
Landscape: Blackland Prairie
Landform: Vaiden and Okolona—uplands; Sucarnoochee—flood plains
Landform position: Vaiden—broad, nearly level ridgetops and smooth, gently sloping side slopes; Okolona—slightly higher, broad, slightly convex ridgetops; Sucarnoochee—level to nearly level, plane to slightly concave slopes
Slope range: 0 to 3 percent

Composition

Percent of the survey area: 16
Vaiden soils: 45 percent
Okolona soils: 22 percent
Sucarnoochee soils: 15 percent
Minor soils: 18 percent (includes Demopolis, Eutaw, Oktibbeha, and Sumter soils)

Soil Characteristics

Vaiden soils

Surface layer: Very dark grayish brown clay
Subsoil: Upper part—yellowish brown clay that has brownish, grayish, and reddish mottles; next part—mottled strong brown, yellowish red, and light brownish gray clay; lower part—light olive brown clay that has yellowish, brownish, and grayish mottles and soft masses of calcium carbonate
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 3 percent
Parent material: Acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk)

Okolona soils

Surface layer: Dark olive gray silty clay loam

Subsurface layer: Black silty clay that has brownish mottles
Subsoil: Upper part—olive clay that has brownish and grayish mottles and soft masses of calcium carbonate; lower part—olive brown clay that has yellowish and grayish mottles and soft masses of calcium carbonate
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Perched at a depth of 4 to 6 feet from January to April
Slope range: 0 to 3 percent
Parent material: Alkaline, clayey residuum derived from soft limestone (chalk)

Sucarnoochee soils

Surface layer: Dark grayish brown clay
Subsurface layer: Very dark gray clay that has olive mottles
Subsoil: Upper part—dark grayish brown clay that has brownish mottles; next part—dark grayish brown clay that has grayish and brownish mottles; lower part—mottled dark grayish brown, light olive brown, and yellowish 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

Minor soils

- The shallow Demopolis soils on side slopes and knolls
- The poorly drained Eutaw soils in slight depressions on uplands
- The moderately well drained Oktibbeha soils on slightly higher, more convex parts of ridgetops
- The moderately deep Sumter soils on side slopes and knolls
- Poorly drained, clayey soils in depressions on flood plains

Use and Management

Major uses: Cultivated crops, pasture, and hayland

Cropland

Management concerns: Vaiden—wetness and poor tilth; Okolona—poor tilth; Sucarnoochee—flooding, wetness, and poor tilth

Pasture and hayland

Management concerns: Vaiden—wetness; Okolona—slight limitations; Sucarnoochee—flooding and wetness

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; Okolona—restricted permeability and shrink-swell potential; Sucarnoochee—flooding, wetness, restricted permeability, and shrink-swell potential

3. Smithdale-Subran-Greenville

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

Setting

Location in the survey area: West-central part
Landscape: Coastal Plain
Landform: Uplands
Landform position: Smithdale—gently sloping to strongly sloping side slopes; Subran—broad, nearly level ridgetops and gently sloping side slopes; Greenville—broad, nearly level ridgetops
Slope range: 0 to 15 percent

Composition

Percent of the survey area: 8
Smithdale soils: 45 percent
Subran soils: 15 percent
Greenville soils: 15 percent
Minor soils: 25 percent (includes Bama, Kinston, Luverne, and Vaiden soils)

Soil Characteristics

Smithdale soils

Surface layer: Brown sandy loam
Subsurface layer: Light yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam; next part—yellowish red sandy clay loam; lower part—yellowish 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

Subran soils

Surface layer: Dark yellowish brown fine sandy loam
Subsoil: Upper part—dark yellowish brown and yellowish brown clay loam; next part—yellowish brown clay loam and clay that has brownish and grayish mottles and nodules of iron and manganese; lower part—mottled yellowish brown, light gray, and red 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 to April
Slope range: 0 to 5 percent
Parent material: Loamy and clayey marine sediments

Greenville soils

Surface layer: Dark reddish brown loam
Subsoil: Upper part—dark reddish brown clay; lower part—dark red 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: Clayey sediments

Minor soils

- Areas of loamy Bama soils on slightly higher parts of ridges
- The poorly drained Kinston soils on narrow flood plains
- Random areas of the clayey Luverne soils on side slopes
- The somewhat poorly drained Vaiden soils on low parts of broad ridges

Use and Management

Major uses: Cultivated crops, pasture, hayland, and as sites 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: Smithdale—slope in steeper areas; Subran—restricted permeability, shrink-swell potential, and wetness; Greenville—restricted permeability

4. Annemaine-Cahaba-Ochlockonee

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

Setting

Location in the survey area: Parallel to the Cahaba River
Landscape: Coastal Plain
Landform: Annemaine and Cahaba—low terraces; Ochlockonee—flood plains
Landform position: Annemaine—level to nearly level, slightly convex slopes; Cahaba—level to gently sloping, slightly convex slopes; Ochlockonee—level to nearly level, convex slopes on high parts of natural levees
Slope range: 0 to 5 percent

Composition

Percent of the survey area: 6
Annemaine soils: 35 percent
Cahaba soils: 30 percent
Ochlockonee soils: 15 percent
Minor soils: 20 percent (includes Eunola, Minter, Myatt, and Riverview soils)

Soil Characteristics

Annemaine soils

Surface layer: Dark brown silt loam
Subsoil: Upper part—yellowish red silty clay; lower part—yellowish red silty clay loam that has grayish, brownish, and reddish mottles
Substratum: Mottled yellowish red, strong brown, and gray loam and sandy loam
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Apparent, at a depth of 1.5 to 2.5 feet from January to April
Slope range: 0 to 2 percent
Parent material: Stratified clayey and loamy alluvium

Cahaba soils

Surface layer: Dark brown sandy loam
Subsurface layer: Strong brown sandy loam
Subsoil: Yellowish red sandy clay 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

Ochlockonee soils

Surface layer: Brown sandy loam
Substratum: Upper part—stratified dark yellowish brown silt loam and light yellowish brown sandy loam and loamy sand; lower part—stratified dark yellowish brown and yellowish brown sandy loam and loamy sand
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: Apparent, at a depth of 3 to 5 feet from January to April
Slope range: 0 to 2 percent
Parent material: Stratified loamy and sandy alluvium

Minor soils

- The moderately well drained Eunola soils on slightly lower, less convex parts of terraces
- The poorly drained Minter soils in old oxbows, sloughs, and shallow depressions on flood plains
- The poorly drained Myatt soils in flat to slightly concave positions on terraces
- The loamy Riverview soils in intermediate positions on natural levees

Use and Management

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

Cropland

Management concerns: Annemaine—wetness; Cahaba—erodibility in steeper areas; Ochlockonee—flooding

Pasture and hayland

Management concerns: Annemaine—wetness; Cahaba—no significant limitations; Ochlockonee—flooding

Woodland

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

Urban development

Management concerns: Annemaine—flooding, wetness, and shrink-swell potential; Cahaba—flooding; Ochlockonee—flooding

5. Luverne-Smithdale

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

Setting

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

Composition

Percent of the survey area: 40
Luverne soils: 40 percent
Smithdale soils: 35 percent
Minor soils: 25 percent (includes Bama, Iuka, Kinston, Maubila, and Saffell soils)

Soil Characteristics

Luverne soils

Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish red clay; next part—red sandy clay; lower part—red sandy clay loam
Substratum: Red sandy clay loam that has brownish mottles
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: Brown sandy loam
Subsurface layer: Light yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam; next part—yellowish red sandy clay loam; lower part—yellowish 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 loamy Bama soils on smoother parts of ridgetops
- The moderately well drained Iuka, poorly drained Kinston, and somewhat poorly drained Mantachie soils on narrow flood plains

- Random areas of the moderately well drained Maubila soils on side slopes
- The gravelly Saffell soils on toe 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: Luverne—restricted permeability, low strength, shrink-swell potential, and slope; Smithdale—slope and seepage

6. Smithdale-Maubila-Saffell

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

Setting

Location in the survey area: Northern 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: 13
Smithdale soils: 35 percent
Maubila soils: 30 percent
Saffell soils: 10 percent
Minor soils: 25 percent (includes Iuka, Kinston, and Luverne soils)

Soil Characteristics

Smithdale soils

Surface layer: Brown sandy loam
Subsurface layer: Light yellowish brown sandy loam
Subsoil: Upper part—red sandy clay loam; next part—yellowish red sandy clay loam; lower part—yellowish 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

Maubila soils

Surface layer: Dark yellowish brown flaggy loam
Subsoil: Upper part—strong brown clay loam and clay that has reddish, brownish, and grayish mottles; lower part—mottled gray, strong brown, yellowish brown, and red clay loam
Substratum: Mottled gray, strong brown, yellowish brown, and red clay that has few strata of ironstone
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 to April
Slope range: 2 to 35 percent
Parent material: Stratified clayey and loamy marine sediments

Saffell soils

Surface layer: Dark yellowish brown gravelly sandy loam
Subsurface layer: Yellowish brown gravelly sandy loam
Subsoil: Upper part—yellowish red very gravelly sandy clay loam; lower part—yellowish red very gravelly sandy loam
Substratum: Yellowish red very gravelly sandy loam that has brownish mottles
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: Stratified loamy, gravelly, and sandy sediments

Minor soils

- The moderately well drained Iuka and poorly drained Kinston soils on narrow flood plains
- Random areas of the well drained, clayey Luverne soils

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, and restricted use of equipment

Urban development

Management concerns: Smithdale—slope and seepage; Maubila—slope, restricted permeability, shrink-swell potential, and low strength; Saffell—slope, seepage, and small stones

7. Mantachie-Iuka-Kinston

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

Setting

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

Composition

Percent of the survey area: 3
- Mantachie soils: 35 percent
- Iuka soils: 30 percent
- Kinston soils: 20 percent
- Minor soils: 15 percent (includes Cahaba, Eunola, Jedburg, and Ochlockonee soils and Fluvaquents)

Soil Characteristics

Mantachie soils

Surface layer: Dark brown silt loam
Subsoil: Upper part—yellowish brown loam that has brownish and grayish mottles; lower part—gray clay loam that has brownish and reddish mottles
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

Iuka soils

Surface layer: Dark brown sandy loam
Substratum: Upper part—light yellowish brown and dark yellowish brown sandy loam that has grayish and brownish mottles; lower part—light gray sandy loam that has brownish and yellowish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Apparent, at a depth of 1 to 3 feet from December to April
Slope range: 0 to 1 percent
Parent material: Stratified loamy and sandy alluvium

Kinston soils

Surface layer: Dark brown silt loam
Substratum: Upper part—grayish brown loam and sandy clay loam that has brownish mottles; next part—dark grayish brown clay loam that has brownish mottles; lower part—dark 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 Eunola, and somewhat poorly drained Jedburg soils on low terraces
- The very poorly drained Fluvaquents soils in depressions
- The well drained Ochlockonee soils on 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, wetness, and low strength

8. Myatt-Eunola

Dominantly level and nearly level, poorly drained and moderately well drained soils that have a loamy surface layer and a loamy subsoil; on low terraces

Setting

Location in the survey area: Parallel to the Cahaba River
Landscape: Coastal Plain
Landform: Low terraces
Landform position: Myatt—flat to slightly concave slopes; Eunola—slightly convex slopes
Slope range: 0 to 2 percent

Composition

Percent of the survey area: 2
Myatt soils: 60 percent
Eunola soils: 30 percent
Minor soils: 10 percent (includes Annemaine, Cahaba, Minter, and Smithdale soils)

Soil Characteristics

Myatt soils

Surface layer: Very dark grayish brown fine sandy loam
Subsurface layer: Light brownish gray fine sandy loam that has brownish mottles
Subsoil: Upper part—light brownish gray fine sandy loam that has brownish and reddish mottles; lower part—gray sandy clay loam that has yellowish, brownish, and reddish mottles
Substratum: Mottled gray, brownish yellow, strong brown, and red sandy 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 January to April
Slope range: 0 to 1 percent
Parent material: Stratified loamy alluvium

Eunola soils

Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish brown sandy clay loam; lower part—yellowish brown and brown sandy clay loam that has grayish and reddish mottles
Substratum: Yellowish brown sandy loam that has grayish and brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: Apparent, at a depth of 1.5 to 2.5 feet from January to April
Slope range: 0 to 2 percent
Parent material: Loamy and sandy alluvium

Minor soils

- The clayey Annemaine soils and the well drained Cahaba soils on slightly higher, more convex positions on terraces. They have a reddish subsoil.
- The poorly drained, clayey Minter soils in shallow depressions
- The well drained Smithdale soils on side slopes at slightly higher elevations

Use and Management

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

Cropland

Management concerns: Wetness

Pasture and hayland

Management concerns: Wetness

Woodland

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

Urban development

Management concerns: Flooding and wetness

9. Demopolis-Sumter-Oktibbeha

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

Setting

Location in the survey area: Southwestern part
Landscape: Blackland Prairie
Landform: Uplands
Landform position: Demopolis—narrow, convex ridgetops, knolls, and short side slopes; Sumter—

broad ridgetops and side slopes; Oktibbeha—broad, convex ridgetops, crests of ridges, and side slopes
Slope range: 1 to 8 percent

Composition

Percent of the survey area: 3
Demopolis soils: 26 percent
Sumter soils: 25 percent
Oktibbeha soils: 25 percent
Minor soils: 24 percent (includes Kipling, Sucarnoochee, Vaiden, and Watsonia soils)

Soil Characteristics

Demopolis soils

Surface layer: Dark grayish brown silt loam
Substratum: Grayish brown 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 8 percent
Parent material: Loamy residuum derived from soft limestone (chalk)

Sumter soils

Surface layer: Dark grayish brown silty clay loam
Subsoil: Upper part—light brownish gray silty clay loam that has few concretions and common soft masses of calcium carbonate; lower part—pale yellow silty clay loam that has many fine concretions and 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 8 percent
Parent material: Alkaline, loamy and clayey residuum derived from soft limestone (chalk)

Oktibbeha soils

Surface layer: Dark yellowish brown clay
Subsoil: Upper part—yellowish red and red clay that has brownish mottles; next part—yellowish brown and light olive brown clay that has grayish and reddish mottles; lower part—light olive brown clay that has grayish and yellowish mottles and soft masses 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)

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 shallow, clayey Watsonia soils on crests of ridges and on side slopes

Use and Management

Major uses: Pasture, woodland, and cultivated crops

Cropland

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

Pasture and hayland

Management concerns: Depth to rock and droughtiness of the Demopolis soils

Woodland

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

Urban development

Management concerns: Demopolis—depth to rock; Sumter—depth to rock, restricted permeability, and shrink-swell potential; Oktibbeha—restricted permeability, shrink-swell potential, and the high content of clay

10. Luverne-Subran-Oktibbeha

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

Setting

Location in the survey area: Southwestern part
Landscape: Coastal Plain
Landform: Uplands
Landform position: Luverne—moderately sloping to steep side slopes; Subran—nearly level to gently sloping ridgetops; Oktibbeha—gently sloping ridgetops
Slope range: 2 to 35 percent

Composition

Percent of the survey area:
Luverne soils: 45 percent
Subran soils: 30 percent
Oktibbeha soils: 15 percent
Minor soils: 10 percent (includes Kinston, Kipling, Smithdale, and Sucarnoochee soils)

Soil Characteristics

Luverne soils

Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish red clay; next part—red sandy clay; lower part—red sandy clay loam
Substratum: Red sandy clay loam that has brownish mottles
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

Subran soils

Surface layer: Dark yellowish brown fine sandy loam
Subsoil: Upper part—dark yellowish brown and yellowish brown clay loam; next part—yellowish brown clay loam and clay that has brownish and grayish mottles; lower part—mottled yellowish brown, light gray, and red 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 to April
Slope range: 0 to 5 percent
Parent material: Loamy and clayey marine sediments

Oktibbeha soils

Surface layer: Dark yellowish brown clay
Subsoil: Upper part—yellowish red and red clay that has brownish mottles; next part—yellowish brown and light olive brown clay that has grayish, brownish, and reddish mottles; lower part—light olive brown clay that has yellowish and grayish mottles and soft masses 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 5 percent
Parent material: Acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk)

Minor soils

• 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, low fertility, and slope in the steeper areas

Pasture and hayland

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

Woodland

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

Urban development

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

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, Bama fine sandy loam, 0 to 2 percent slopes, is a phase of the Bama 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. Luverne-Smithdale complex, 5 to 15 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. Mantachie, Iuka, 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 “Summary of Tables”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AnA—Annemaine silt loam, 0 to 2 percent slopes, rarely flooded

This very deep, moderately well drained soil is on low terraces that are parallel to the Cahaba 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 10 to about 300 acres in size.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil, to a depth of 42 inches, is yellowish red silty clay in the upper part and is yellowish red silty clay loam that has brownish, reddish, and grayish mottles in the lower part. The substratum, to a depth of 75 inches, is loam and sandy loam that is mottled in shades of yellowish red, strong brown, and gray.

Important properties of the Annemaine 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: Apparent, at a depth of 1.5 to 2.5 feet from January to April
Shrink-swell potential: Moderate
Flooding: Rare

Included in mapping are a few small areas of Cahaba, Eunola, Minter, and Myatt soils. Cahaba and Eunola soils are in slightly higher, more convex landscape positions. They are loamy throughout the profile. The poorly drained Minter and Myatt soils are in 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, and hay. A few areas are used for woodland.

This soil is well suited to cultivated crops. The main limitation is the wetness. This soil is friable and is 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 soil 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. Other species that commonly grow in areas of this soil include shortleaf pine, yellow-poplar, 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, 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 soil 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. Additional limitations include the moderate shrink-swell potential and low strength if the soil is used as a site for local roads and streets.

This soil 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. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

This Annemaine soil is in capability subclass IIw. The woodland ordination symbol is 9W.

BaA—Bama 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. They range from 10 to more than 150 acres in size.

Typically, the surface layer is dark brown fine sandy loam about 6 inches thick. The subsoil, to a depth of 75 inches, is red clay loam in the upper part, red sandy clay loam in the next part, and dark red sandy clay loam in the lower part.

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 Greenville and Smithdale soils. Greenville soils are in slightly lower landscape positions than the Bama soil. They have a clayey subsoil. Smithdale soils are in landscape positions similar to those of the Bama soil. 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 and 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.—A pecan orchard in an area of Bama fine sandy loam, 0 to 2 percent slopes. This area provides a harvest of pecans and provides suitable pasture and shade for a herd of beef cattle.

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

This very deep, well drained soil is on ridgetops and on the 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 dark brown fine sandy loam about 6 inches thick. The subsoil, to a depth of 65 inches, is dark red sandy clay loam in the upper part, red sandy clay loam in the next part, and yellowish red sandy clay loam in the lower part.

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 Greenville, Luverne, and Smithdale soils. Greenville soils are in landscape positions similar to those of the Bama soil. They have a dark red, clayey subsoil. 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 (fig. 3). 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 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 90. The average annual growth of well stocked, even-aged, unmanaged stands

Figure 3.—An area of Bama fine sandy loam, 2 to 5 percent slopes. This soil is well suited to bermudagrass and bahiagrass hay.

Figure 4.—"Thunbergii" lespedeza in an area of Bama fine sandy loam, 2 to 5 percent slopes. This area is managed to provide food and cover for bobwhite quail. The plants in the foreground have been shredded to produce new growth, and the standing plants in the background provide cover from predators.

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 (fig. 4). 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.

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

This very deep, well drained soil is on low terraces that parallel the Cahaba 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 dark brown sandy loam about 7 inches thick. The subsoil, to a depth of 45 inches, is strong brown sandy loam in the upper part and yellowish red sandy clay 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: Rare

Included in mapping are a few small areas of Annemaine, Eunola, and Myatt soils. The moderately well drained Annemaine and Eunola soils are in slightly lower, more concave landscape positions. Annemaine soils have a clayey texture in the upper part of the subsoil. Eunola soils have a brownish subsoil. The poorly drained Myatt soils are in 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, and 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 management 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 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, 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 home site, 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.

CaB—Cahaba 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 Cahaba 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 50 acres in size.

Typically, the surface layer is dark brown sandy loam about 5 inches thick. The subsoil, to a depth of 50 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 Annemaine, Eunola, and Myatt soils. The moderately well drained Annemaine and Eunola soils are in flatter, less sloping landscape positions. Annemaine soils have a clayey texture in the upper part of the subsoil. Eunola soils have a brownish subsoil. The poorly drained Myatt soils are in 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, and 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 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, 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 home site, 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.

DsD2—Demopolis-Sumter complex, 3 to 8 percent slopes, eroded

This map unit consists of the shallow, well drained Demopolis soil and the moderately deep, well drained Sumter soil. It is on narrow ridgetops and side slopes 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 Demopolis soil makes up about 65 percent of the map unit, and the Sumter soil makes up about 25 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

The Demopolis soil is on the more convex parts of ridgetops and on the upper parts of side slopes. Typically, the surface layer is dark grayish brown silty clay loam about 4 inches thick. The substratum, to a depth of 10 inches, is grayish brown silt 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

The Sumter soil is on smoother, less convex parts of ridgetops. Typically, the surface layer is very dark yellowish brown silty clay about 5 inches thick. The subsoil, to a depth of 30 inches, is grayish brown silty clay in the upper part and light olive brown silty clay in the lower part. The substratum, to a depth of 80 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 Kipling, Oktibbeha, and Watsonia soils. Also included are areas of chalk outcrop and areas of gullied land. The somewhat poorly drained Kipling soils are on the lower parts of slopes. They are acid in the upper part of the subsoil and are very deep over bedrock. Oktibbeha and Watsonia soils are on the upper parts of slopes. They 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 or as woodland and wildlife habitat.

This map unit 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 map unit 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 map unit is suited to eastern redcedar. Demopolis and Sumter 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 map unit has moderate to severe 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. Using standard wheeled and tracked equipment when the soils are wet results in rutting and compaction and increases the hazard of erosion. 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.

The Demopolis soil has poor potential as habitat for openland and woodland wildlife and very poor potential as habitat for wetland wildlife. The Sumter soil 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 Demopolis and Sumter soils are in capability subclass VIe. The woodland ordination symbol is 3D for the Demopolis soil and 3C for the Sumter soil.

DwB—Demopolis-Watsonia complex, 1 to 3 percent slopes

This map unit consists of the shallow, well drained Demopolis and Watsonia soils. It is on narrow ridgetops in the 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 Demopolis soil makes up about 65 percent of the map unit, and the Watsonia soil makes up about 25 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

The Demopolis soil is on the flatter, less convex parts of ridgetops. Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The substratum, to a depth of 13 inches, is grayish brown 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

The Watsonia soil is on the crests of ridges. Typically, the surface layer is dark brown clay about 3 inches thick. The subsoil, to a depth of 16 inches, is yellowish red clay in the upper part and light olive 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 Oktibbeha and Sumter soils. Also included are a few small areas of rock outcrop. 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. Sumter soils are in landscape positions similar to those of the Demopolis soil. They are calcareous to the surface and are moderately 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 poorly suited to cultivated crops. The main limitations are the low available water capacity, the shallow depth to bedrock, and poor tilth.

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 Demopolis soil are suited to eastern redcedar. The Demopolis 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. 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 1.6 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 the 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 of the Watsonia soil.

This map unit 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.

The Demopolis and Watsonia soils are in capability subclass IVe. The woodland ordination symbol is 3D for the Demopolis soil and 7D for the Watsonia soil.

EnA—Eunola 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 Cahaba 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 150 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam about 10 inches thick. The subsoil, to a depth of 48 inches, is yellowish brown sandy clay loam in the upper part and yellowish brown sandy clay loam that has light brownish gray, red, and yellowish red mottles in the lower part. The substratum, to a depth of 60 inches, is yellowish brown sandy loam that has brownish and grayish mottles.

Important properties of the Eunola soil—

Permeability: Moderate in the subsoil; 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: Apparent, at a depth of 1.5 to 2.5 feet from January to April
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Annemaine, Cahaba, and Myatt soils. Annemaine soils are in slightly lower positions than the Eunola soil. They have reddish colors and clayey textures in the upper part of the subsoil. Cahaba soils are in slightly higher, more convex landscape positions. They have a reddish subsoil. The poorly drained Myatt soils are in 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 the Eunola soil are used for cultivated crops, pasture, and 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 is 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 soil 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 soil 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.

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

EtA—Eutaw clay, 0 to 1 percent slopes

This very deep, poorly drained soil is in flat or depressional positions in the uplands of the Blackland Prairie. Slopes are generally long, smooth, and slightly concave. Individual areas are irregular in shape. They range from 5 to 150 acres in size.

Typically, the surface layer is dark brown clay about 4 inches thick. The subsoil, to a depth of 60 inches, is light gray clay that has brownish mottles.

Important properties of the Eutaw 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 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 Vaiden soils. The somewhat poorly drained Vaiden soils are in slightly higher landscape positions than the Eutaw soil. They have brownish colors in the upper part of the subsoil. Also included are small areas of soils that are similar to the Eutaw soil but have water ponded 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 the Eutaw soil are used as woodland. A few areas are used for cultivated crops, hay, or pasture.

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 it 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, 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 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 the 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. Properly designing foundations and footings and diverting runoff water away from the 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 Eutaw soil is in capability class IIIw. The woodland ordination symbol is 8W.

FuA—Fluvaquents, ponded

These very deep, very poorly drained soils are in swales, sloughs, oxbows, beaver ponds, or other shallow depressions on the flood plains of streams that drain the Coastal Plain. Slopes are smooth and concave. Most areas are subject to ponding for several months in most years. Individual areas vary in shape from circular to long and narrow. They range from 5 to 150 acres in size.

Important properties of Fluvaquents—

Permeability: 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, from 2 feet above the surface to a depth of 1 foot from January through December
Shrink-swell potential: Low
Flooding: Frequent

Included in mapping are a few small areas of Mantachie and Iuka soils. The somewhat poorly drained Mantachie soils and the moderately well drained Iuka soils are in slightly higher landscape positions. They are not subject to ponding. 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 this map unit are used as woodland and as habitat for wildlife.

This map unit 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 baldcypress or green ash. Other species that commonly grow in areas of this soil include black gum, red maple, and water tupelo. The understory vegetation consists mainly of black alder, bulrush, greenbrier, ferns, switchcane, red maple, and black willow. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table 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 tree planting rate. 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 map unit 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 map unit has 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 open water areas for waterfowl and furbearers and by planting mast-producing trees.

Fluvaquents are in capability subclass VIIw. They are not assigned a woodland ordination symbol.

GrA—Greenville 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 in shape. They range from 10 to 80 acres in size.

Typically, the surface layer is dark reddish brown loam about 6 inches thick. The subsoil, to a depth of 65 inches, is dark reddish brown clay in the upper part and dark red clay loam in the lower part.

Important properties of the Greenville 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 and Smithdale soils are in slightly higher landscape positions than the Greenville soil. They have a loamy 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 the Greenville 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, but it is difficult to keep in good tilth where cultivation has mixed some of clayey subsoil into the plow layer. Using conservation practices, such as cover crops and 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 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, 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 slight to moderate limitations for most uses. The main limitation is the moderate permeability. Septic tank absorption fields may not function properly because of the moderate permeability. Enlarging the size of the absorption field can help 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 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 Greenville soil is in capability class I. The woodland ordination symbol is 8A.

GrB—Greenville loam, 2 to 5 percent slopes

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

Typically, the surface layer is dark reddish brown loam about 5 inches thick. The subsoil, to a depth of 65 inches, is dark reddish brown clay in the upper part and dark red clay in the lower part.

Important properties of the Greenville 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, Luverne, and Smithdale soils. Bama soils are in slightly higher positions than the Greenville soil. They are loamy throughout the profile. Luverne and Smithdale soils are in landscape positions similar to those of the Greenville soil. Luverne soils do not have a dark red argillic horizon, and they have a thinner solum than the Greenville soil. Smithdale soils 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 the Greenville soil are used for cultivated crops, pasture, or hay. A few areas are wooded.

This soil is well suited to cultivated crops. The low fertility and the moderate hazard of erosion are the main limitations. 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. 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 helps to maintain tilth, reduces crusting, and increases the water-holding capacity. 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 commonly grown grasses. The main management concerns are the low fertility and the moderate hazard of erosion. The seedbed should be prepared on the contour or across the slope if practical. Applications of lime and fertilizer improve fertility and increase the production of forage. 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 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, greenbrier, panicums, huckleberry, sumac, muscadine grape, 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. Proper site preparation practices, such as chopping, burning, and applying herbicide, help to control the initial plant competition and facilitate mechanical planting. Management activities should include conservation practices to control soil erosion. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills.

This soil is suited to most urban uses. It has slight limitations for building sites and local roads and streets, and moderate limitations for most kinds of sanitary facilities. The main limitations are the moderate permeability and the slope. Septic tank absorption fields may not function properly because of the moderate permeability. Increasing the size of the absorption area or using an alternate system of waste disposal helps to overcome this limitation. Absorption lines should be installed on the contour.

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 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 Greenville soil is in capability subclass IIe. The woodland ordination symbol is 8A.

KpB—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 500 acres in size.

Typically, the surface layer is dark yellowish brown clay loam about 5 inches thick. The subsoil, to a depth of 80 inches, is yellowish brown clay and silty clay that has reddish and grayish mottles in the upper part; mottled light gray, strong brown, yellowish brown, and red clay in the next part; and light olive brown clay that has reddish and grayish mottles in the lower part. Soft masses and concretions of calcium carbonate occur in the lower part.

Important properties of the Kipling 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 1.5 to 3 feet from January to April
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. They 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 it becomes cloddy if farmed when 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 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 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 clayey texture of the surface layer and the 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. Properly designing foundations and footings and diverting runoff water away from the 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 9C.

LnB—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 strong brown sandy loam about 5 inches thick. The subsoil, to a depth of 35 inches, is red clay loam and sandy clay in the upper part and red sandy clay loam that has mottles in shades of brown in the lower part. The substratum, to a depth of 60 inches, is stratified clay loam, sandy clay loam, and sandy loam. Individual strata are light grayish brown, brownish yellow, and yellowish brown.

Important properties of the Luverne soil—

Permeability: Moderately 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 Bama, Maubila, and Smithdale soils. Bama and Smithdale soils are in slightly higher landscape positions than the Luverne soil. They are loamy throughout the profile. Maubila soils are in landscape positions similar to those of the Luverne soil. They commonly have fragments of ironstone in the surface layer and have a brownish subsoil. 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 the Luverne soil are used for woodland. A few areas are used for cultivated crops, pasture, or 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, 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, common persimmon, 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 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 the soil is used as sites for local roads and streets. Properly designing foundations and footings and diverting runoff away from the 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.

LsD—Luverne-Smithdale complex, 5 to 15 percent slopes

This map unit consists of the very deep, well drained Luverne and Smithdale soils. It is on side slopes 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 Luverne soil makes up about 50 percent of the map unit, and the Smithdale soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 25 to more than 500 acres in size.

The Luverne soil is generally on the middle and lower parts of slopes. Typically, the surface layer is dark yellowish brown sandy loam about 3 inches thick. The subsoil, to a depth of 43 inches, is yellowish red clay in the upper part and red sandy clay in the lower part. The substratum, to a depth of 65 inches, is red sandy clay loam that has strong brown mottles.

Important properties of the Luverne soil—

Permeability: Moderately 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 Smithdale soil is generally on the upper parts of slopes and on narrow ridgetops. Typically, the surface layer is brown sandy loam about 4 inches thick. The subsurface layer, to a depth of 13 inches, is light yellowish brown sandy loam. The subsoil, to a depth of 60 inches, is red sandy clay loam in the upper part; yellowish red sandy clay loam in the next part; and yellowish 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 Kinston, Maubila, and Saffell soils. Also included are areas of soils that are similar to the Smithdale soil but have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Maubila and Saffell soils are in landscape positions similar to those of the Luverne and Smithdale soils. Maubila soils commonly have fragments of ironstone in the surface layer. They have a brownish, clayey subsoil. Saffell soils have more than 35 percent gravel in the subsoil. 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 and 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 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. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This map unit is well 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 Luverne soil and 85 for the Smithdale 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 Luverne soil and 2.1 cords per acre per year for the Smithdale soil. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, honeysuckle, waxmyrtle, muscadine grape, American beautyberry, yellow jessamine, 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, 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. 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, and the low strength of the Luverne soil.

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 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 Luverne and Smithdale soils are in capability subclass VIe. The woodland ordination symbol is 9C for the Luverne soil and 9A for the Smithdale soil.

LsE—Luverne-Smithdale complex, 15 to 35 percent slopes

This map unit consists of the very deep, well drained Luverne and Smithdale soils. It is on side slopes 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 Luverne soil makes up about 50 percent of the map unit, and the Smithdale soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 25 to more than 1,000 acres in size.

The Luverne soil is generally on the middle and lower parts of slopes. Typically, the surface layer is dark yellowish brown sandy loam about 3 inches thick. The subsoil, to a depth of 43 inches, is yellowish red clay in the upper part and red sandy clay in the lower part. The substratum, to a depth of 65 inches, is red sandy clay loam that has strong brown mottles.

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

The Smithdale soil is generally on the upper parts of slopes and on narrow ridgetops. Typically, the surface layer is dark yellowish brown sandy loam about 6 inches thick. The subsoil, to a depth of 65 inches, is yellowish red sandy clay loam in the upper part and yellowish 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 Kinston, Maubila, and Saffell soils. Also included are areas of soils that are similar to the Smithdale soil but have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Maubila and Saffell soils are in landscape positions similar to those of the Luverne and Smithdale soils. Maubila soils commonly have fragments of ironstone in the surface layer and have a brownish, clayey subsoil. Saffell soils have more than 35 percent gravel in the subsoil. 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 and 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 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 Luverne soil and 85 for the Smithdale 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 Luverne soil and 2.1 cords per acre per year for the Smithdale soil. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, honeysuckle, wax myrtle, muscadine grape, American beautyberry, red maple, yellow jessamine, 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, 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

Figure 5.—An area of Luverne-Smithdale complex, 15 to 35 percent slopes, that has been site prepared and replanted with loblolly pine. The windrows are across the slope, and the trees have been planted along the contour where practical.

reforestation without intensive site preparation and maintenance. Site preparation controls the initial plant competition, and herbicides can be used to control the subsequent growth (fig. 5).

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, and the low strength of the Luverne 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 Luverne and Smithdale soils are in capability subclass VIIe. The woodland ordination symbol is 9R.

MIA—Mantachie, Iuka, and Kinston soils, 0 to 1 percent slopes, frequently flooded

This map unit consists of the very deep, somewhat poorly drained Mantachie soil, the moderately well drained Iuka 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 Mantachie soil, some areas mainly consist of Iuka or Kinston soils, and other areas contain all three soils in variable proportions. Individual areas are usually long and narrow. They range from 5 to more than 1,000 acres in size.

The Mantachie soil makes up about 35 percent of the map unit. It is in smooth, slightly convex positions at intermediate elevations on the flood plain. Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil, to a depth of 60 inches, is yellowish brown loam that has common grayish and brownish mottles in the upper part and is gray clay loam that has brownish and reddish mottles 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 Iuka soil makes up about 30 percent of the map unit. It is on higher, more convex parts of the flood plain. Typically, the surface layer is dark brown sandy loam about 7 inches thick. The substratum, to a depth of 60 inches, is light yellowish brown and dark yellowish brown sandy loam that has grayish and brownish mottles 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

The Kinston soil makes up about 25 percent of the map unit. It is in flat to concave positions, generally at the lowest elevations on the flood plain. Typically, the surface layer is dark brown silt loam about 5 inches thick. The substratum, to a depth of 60 inches, is grayish brown loam and sandy clay loam in the upper part, dark grayish brown clay loam in the next part, and dark 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, Eunola, and Ochlockonee soils. The well drained Cahaba soils and the moderately well drained Eunola soils are on low knolls or remnants of terraces at slightly higher elevations. They are not subject to frequent flooding. The well drained Ochlockonee 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 Mantachie, Iuka, and Kinston soils. 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 and increasing the tree planting rate. 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 Mantachie and Iuka 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 the Mantachie and Kinston soils and poor for the Iuka 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 Mantachie, Kinston, and Iuka soils are in capability subclass Vw. The woodland ordination symbol for each soil is 11W.

MkC2—Maubila flaggy loam, 2 to 8 percent slopes, eroded

This very deep, moderately well drained soil is on side slopes and narrow ridgetops in 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. Most areas are irregular in shape. They range from 20 to 250 acres in size.

Typically, the surface layer is dark yellowish brown flaggy loam about 3 inches thick. The subsoil, to a depth of 52 inches, is strong brown clay loam in the upper part; strong brown clay that has reddish and grayish mottles in the next part; and mottled gray, strong brown, yellowish brown, and red clay loam in the lower part. The substratum, to a depth of 80 inches, is mottled gray, strong brown, yellowish red, and red clay.

Important properties of the Maubila soil—

Permeability: 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: Perched, at a depth of 2 to 3.5 feet from January to April
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Luverne, Saffell, and Smithdale soils. Also included are small areas of severely eroded soils. Luverne soils are in slightly lower positions than the Maubila soil. They have a reddish subsoil and do not have a significant content of ironstone within the profile. Smithdale and Saffell soils are on slightly higher knolls. They have a reddish subsoil and are loamy throughout the profile. 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 the Maubila soil are used as woodland. 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, the high content of coarse fragments, 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. 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. Coarse fragments on the surface may damage equipment. 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 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 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 little bluestem, panicums, greenbrier, poison oak, brackenfern, huckleberry, blackjack oak, turkey oak, and flowering dogwood.

This soil 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 for most kinds of sanitary facilities. The main limitations are the moderately slow permeability and the low strength when used as sites for roads or streets. 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 Maubila soil is in capability subclass IVe. The woodland ordination symbol is 7C.

MsE—Maubila-Smithdale complex, 15 to 35 percent slopes

This map unit consists of the very deep, moderately well drained Maubila soil and the well drained Smithdale soil. It is on side slopes in 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 Maubila soil makes up about 50 percent of the map unit, and the Smithdale soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 100 to more than 1,500 acres in size.

The Maubila soil is generally on the middle and lower parts of slopes. Typically, the surface layer is yellowish brown flaggy sandy loam about 4 inches thick. The subsoil, to a depth of 44 inches, is strong brown clay loam in the upper part; brownish yellow clay loam that has grayish, brownish, and reddish mottles in the next part; and mottled yellowish brown, gray, and yellowish red clay in the lower part. The substratum, to a depth of 65 inches, is mottled yellowish brown, red, and gray clay that has thin strata of ironstone and coarser textured materials.

Important properties of the Maubila soil—

Permeability: 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: Perched, at a depth of 2 to 3.5 feet from January to April
Shrink-swell potential: Moderate
Flooding: None

The Smithdale soil is generally on the upper parts of slopes and on narrow ridgetops. Typically, the surface layer is dark yellowish brown sandy loam about 3 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 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 Luverne, Kinston, and Saffell soils. Also included are areas of soils that are similar to the Smithdale soil except that they have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Luverne and Saffell soils are in landscape positions similar to those of the Maubila and Smithdale soils. Luverne soils have a reddish, clayey subsoil and do not have a significant content of ironstone. Saffell soils have more than 35 percent gravel in the subsoil. 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.

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 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 75 for the Maubila soil and 85 for the Smithdale soil. 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 for the Maubila soil and 2.1 cords per acre per year for the Smithdale soil. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, turkey oak, blackjack oak, muscadine grape, American beautyberry, brackenfern, yellow jessamine, 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, 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 moderately slow permeability, the moderate shrink-swell potential, and the low strength of the Maubila 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 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 Maubila and Smithdale soils are in capability subclass VIIe. The woodland ordination symbol is 7R for the Maubila soil and 9R for the Smithdale soil.

MtA—Minter silty clay loam, ponded

This very deep, poorly drained soil is in old oxbows and other shallow depressions on the flood plain of the Cahaba River and on low terraces. Slopes are smooth and concave. Most areas are subject to ponding for several months in most years. Individual areas vary in shape from circular to long and narrow. They range from 5 to 100 acres in size.

Important properties of the Minter soil—

Permeability: Very 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, from 3 feet above the surface to a depth of 1 foot from January through December
Shrink-swell potential: Moderate
Flooding: Frequent

Included in mapping are a few small areas of

Annemaine and Eunola soils. The moderately well drained Annemaine and Eunola soils are in slightly higher positions and are not subject to ponding. 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 Minter 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 soil is suited to the production of baldcypress or green ash. Other species that commonly grow in areas of this soil include black gum, red maple, sweetgum, and water tupelo. On the basis of a 50-year site curve, the site index for baldcypress is 80. 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 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 tree planting rate. 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 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 open water areas for waterfowl and furbearers and by planting mast-producing trees.

This Minter soil is in capability subclass VIIw. The woodland ordination symbol is 4W.

MyA—Myatt fine sandy loam, 0 to 1 percent slopes, rarely flooded

This very deep, poorly drained soil is in flat to slightly concave areas on low terraces that parallel the Cahaba River and other large streams throughout the county. Slopes are smooth and slightly concave. Individual areas are generally broad and oblong in shape, but some areas are long and narrow. They range from 5 to about 500 acres in size.

Typically, the surface layer is very dark grayish brown fine sandy loam about 6 inches thick. The subsurface layer, to a depth of 11 inches, is light brownish gray fine sandy loam. The subsoil, to a depth of 45 inches, is light brownish gray fine sandy loam that has brownish and reddish mottles in the upper part and gray sandy clay loam that has brownish and reddish mottles in the lower part. The substratum, to a depth of 65 inches, is mottled gray, brownish yellow, strong brown, and red sandy clay loam that has thin strata of sandy loam and sandy clay.

Important properties of the Myatt 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: Apparent, at the surface to a depth of 1 foot from January to April
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Cahaba and Eunola soils. The well drained Cahaba soils and the moderately well drained Eunola soils are in slightly higher, more convex landscape positions than the Myatt soil. Also included are small areas of soils that are similar to the Myatt soil but are in depressions that are ponded for long periods during the growing season. 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 Myatt soil are used for woodland and pasture. A few areas are used for cultivated crops and hay.

This soil is poorly suited to cultivated crops, pasture, and hay. Wetness is the main limitation. 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 main limitation is wetness. A surface and subsurface drainage system should be provided if buildings are constructed. Septic tank absorption fields will not function properly during rainy periods because of wetness. Constructing the absorption field on a raised bed helps to overcome the high water table.

This soil has good potential as habitat for woodland and wetland 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 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 Myatt soil is in capability subclass IIIw. The woodland ordination symbol is 9W.

OaA—Ochlockonee sandy loam, 0 to 1 percent slopes, occasionally flooded

This very deep, well drained soil is on natural levees along large streams throughout the county. Slopes are smooth and slightly convex. Individual areas are generally long and narrow. They range from 10 to 100 acres in size.

Typically, the surface layer is dark brown fine sandy loam about 9 inches thick. The substratum, to a depth of 65 inches, is strong brown loamy sand and sandy loam in the upper part and yellowish brown and dark yellowish brown silt loam and loamy sand in the lower part.

Important properties of the Ochlockonee soil—

Permeability: Moderate
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: Apparent, at a depth of 3 to 5 feet from January to April
Shrink-swell potential: Low
Flooding: Occasional

Included in mapping are a few small areas of Iuka, Kinston, Mantachie, and Riverview soils. The moderately well drained Iuka and somewhat poorly drained Mantachie soils are in slightly lower, less convex positions than the Ochlockonee soil. The poorly drained Kinston soils are in slight depressions. Riverview soils are in positions similar to those of the Ochlockonee soil. They have a higher content of clay 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 the Ochlockonee soil are used for cultivated crops, pasture, or hay. A few small 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. 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 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, 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 soil has good 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, 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 Ochlockonee soil is in capability subclass IIw. The woodland ordination symbol is 11A.

ObB—Ochlockonee-Riverview complex, gently undulating, frequently flooded

This map unit consists of the very deep, well drained Ochlockonee and Riverview soils on the flood plains of the Cahaba River and other large streams throughout the county. These soils are subject to frequent flooding for brief periods. 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 Ochlockonee soil makes up about 65 percent of the map unit, and the Riverview soil makes up about 20 percent. Slopes range from 0 to 3 percent. Individual areas are long and narrow. They range from 10 to 1,000 acres in size.

The Ochlockonee soil is on high parts of the natural levee. Typically, the surface layer is brown sandy loam about 4 inches thick. The substratum, to a depth of 60 inches, is stratified dark yellowish brown and light yellowish brown silt loam, sandy loam, and loamy sand.

Important properties of the Ochlockonee soil—

Permeability: Moderate
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: Apparent, at a depth of 3 to 5 feet from January to April
Shrink-swell potential: Low
Flooding: Frequent

The Riverview soil is on intermediate parts of the flood plain. Typically, the surface layer is dark brown silt loam and dark yellowish brown loam about 10 inches thick. The subsoil, to a depth of 35 inches, is yellowish brown loam in the upper part and dark yellowish brown loam in the lower part. The substratum, to a depth of 65 inches, is dark yellowish brown sandy loam in the upper part and brownish yellow loamy sand and sand in the lower part.

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 January to April
Shrink-swell potential: Low
Flooding: Frequent

Included in mapping are a few small areas of Annemaine, Cahaba, and Minter soils. Annemaine and Cahaba soils are in slightly higher positions on adjacent low terraces. Annemaine soils have a reddish, clayey subsoil. Cahaba soils have a reddish subsoil. The poorly drained Minter soils are in small depressions. 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 wildlife habitat. A few areas are used for pasture and hay.

This map unit is poorly suited to cultivated crops. Frequent flooding is the main management concern. If cultivated crops are grown, protection from flooding is needed.

These soils are suited to pasture and hay. Frequent flooding is the main management concern. Scouring and deposition by fast-flowing water may damage pasture or hay crops and structures. 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.

These soils are well suited to loblolly pine and hardwoods. Other species that commonly grow in areas of these soils include yellow-poplar, water oak, American sycamore, green ash, eastern cottonwood, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 100 for the Ochlockonee and Riverview soils. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine is 2.7 cords per acre per year for each soil. The understory vegetation consists mainly of greenbrier, blackberry, panicums, poison ivy, Alabama supplejack, red maple, 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. Flooding and wetness in late winter and in spring are the main management concerns. Harvesting activities should be planned during the summer and fall to avoid the delays and damage caused by flooding. Flooding and the accompanying scouring and deposition results in increased seedling mortality. 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 competition, and herbicides can be used to control the subsequent growth.

This map unit 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 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 for waterfowl and furbearers.

The Ochlockonee and Riverview soils are in capability subclass IVw. The woodland ordination symbol is 11W.

OcB—Ocilla-Jedburg complex, 1 to 3 percent slopes

This map unit consists of the very deep, somewhat poorly drained Ocilla and Jedburg soils. It is on stream terraces along the Cahaba River and other large streams throughout the county. 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 Ocilla soil makes up about 50 percent of the map unit, and the Jedburg soil makes up about 35 percent. Individual areas are oblong in shape. They range from 10 to 200 acres in size.

The Ocilla soil is on slightly higher, more convex parts of the terrace. Typically, the surface layer is brown loamy fine sand about 6 inches thick. The subsurface layer, to a depth of 26 inches, is light yellowish brown loamy fine sand in the upper part and pale yellow loamy fine sand in the lower part. The subsoil, to a depth of 65 inches, is light olive brown sandy clay loam that has grayish, brownish, and reddish mottles in the upper part. It is mottled gray, yellowish brown, strong brown, and red sandy clay loam in the lower part.

Important properties of the Ocilla 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 1.5 to 2.5 feet from January to April
Shrink-swell potential: Low
Flooding: None

The Jedburg soil is on lower, more concave parts of the terrace. Typically, the surface layer is dark grayish brown fine sandy loam about 7 inches thick. The subsurface layer, to a depth of 14 inches, is brown fine sandy loam. The subsoil, to a depth of 65 inches, is light olive brown fine sandy loam that has brownish and grayish mottles in the upper part; light brownish gray and grayish brown sandy clay loam that has brownish and reddish mottles in the next part; and grayish brown clay loam that has brownish and grayish mottles in the lower part.

Important properties of the Jedburg 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: Apparent, at a depth of 0.5 to 1.5 feet from January to April
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Eunola, Kinston, and Myatt soils. Eunola soils are in landscape positions similar to those of the Ocilla soil. They do not have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. The poorly drained Myatt soils are in small depressions. 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 cultivated crops, pasture, or hay.

This map unit is suited to cultivated crops. The main limitation is wetness. The low available water capacity of the Ocilla soil is an additional limitation. Shallow ditches help to remove excess surface water. 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 fertilizer.

These soils are suited to pasture and hay. Wetness is the main limitation. Shallow ditches help to remove excess surface water. The low available water capacity is an additional limitation in areas of the Ocilla soil. 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.

These soils are well 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 Ocilla and Jedburg soils. The average annual growth of well stocked, even aged, unmanaged stands of loblolly pine is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, blackberry, panicums, poison ivy, flowering dogwood, sweetgum, and water oak.

These soils have 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 sandy surface layer of the Ocilla 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 Ocilla 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 competition, and herbicides can be used to control the subsequent growth.

This map unit is poorly suited to most urban uses. It has moderate to severe limitations for building sites, local roads and streets, and most sanitary facilities. The wetness is the main limitation. 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 and woodland wildlife and fair 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 wetland wildlife can be improved by constructing shallow ponds to provide open water for waterfowl and furbearers.

The Ocilla and Jedburg soils are in capability subclass IIw. The woodland ordination symbol is 9W.

OkB—Okolona silty clay loam, 0 to 3 percent slopes

This very deep, moderately well drained soil is on broad ridgetops in the uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

Typically, the surface layer is dark olive gray silty clay loam about 6 inches thick. The subsurface layer, to a depth of 27 inches, is black silty clay. The subsoil, to a depth of 60 inches, is olive clay that has brownish

Figure 6.—An area of Okolona silty clay loam, 0 to 3 percent slopes. This soil has a dark colored surface layer. It is well suited to cultivated crops and pasture, but tilth is difficult to maintain if the soil is plowed when it is too wet or too dry.

mottles in the upper part and olive brown clay that has brownish and grayish mottles in the lower part. Soft masses and concretions of calcium carbonate occur throughout the profile.

Important properties of the Okolona soil—

Permeability: Very slow
Available water capacity: High
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 4 to 6 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. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains. Sumter soils are in higher positions than the Okolona soil. They do not have thick, dark-colored surface and subsurface layers. Vaiden soils are in slightly lower positions than the Okolona soil. They do not have a thick, dark-colored surface layer, and 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 the Okolona soil are used for cultivated crops. A few areas are used for pasture, hay, or pecan orchards.

This soil is well suited to most cultivated crops. The main limitation is the poor tilth (fig. 6). Erosion is a moderate hazard when this soil is cultivated. This soil can be worked only within a narrow range of moisture content, and it becomes 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 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 suited to eastern redcedar and hardwoods. Other species that commonly grow in areas of this soil include sugarberry 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, blackberry, Macartney rose, winged elm, Osage orange, broomsedge bluestem, and hawthorns.

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 clayey texture of the surface layer and the 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 very slow permeability, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Properly designing foundations and footings and diverting runoff water away from the 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 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. 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 Okolona soil is in capability class IIe. The woodland ordination symbol is 3C.

OtC—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 50 acres in size.

Typically, the surface layer is dark brown clay loam about 5 inches thick. The subsoil, to a depth of 75 inches, is yellowish red clay in the upper part; mottled strong brown, yellowish brown, red, and gray clay in the next part; and olive yellow clay that has brownish and grayish mottles in the lower part. Soft masses and concretions of calcium carbonate occur 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 landscape positions. They do not have a reddish subsoil. Sumter soils are in higher or lower positions than the Oktibbeha soil. They are alkaline throughout the profile. Watsonia soils are in positions similar to those of the Oktibbeha soil. They 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 the Oktibbeha 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 it becomes cloddy if farmed when 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 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 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 clayey texture of the surface layer and the 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. Properly designing foundations and footings and diverting runoff water away from the 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.

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 25 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, Greenville, Luverne, Maubila, and Smithdale 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 Annemaine, Cahaba, and Eunola 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 this unit for any uses.

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

SaD—Saffell gravelly sandy loam, 5 to 15 percent slopes

This very deep, well drained soil is on side slopes, toe 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 500 acres in size.

Typically, the surface layer is dark yellowish brown gravelly sandy loam about 5 inches thick. The subsurface layer, to a depth of 10 inches, is yellowish brown gravelly sandy loam. The subsoil, to a depth of 42 inches, is yellowish red very gravelly sandy clay loam in the upper part and yellowish red very gravelly sandy loam in the lower part. The substratum, to a depth of 60 inches, is yellowish red very gravelly sandy loam.

Important properties of the Saffell soil—

Permeability: Moderate
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 Kinston, Luverne, Smithdale, and Maubila soils. The poorly drained Kinston soils are on narrow flood plains. Luverne, Maubila, and Smithdale soils are in landscape positions similar to those of the Saffell soil. Luverne and Maubila soils have a clayey subsoil. Smithdale soils do not have a significant content of gravel in the solum. Also included are areas of soils on slopes of less than 5 percent and 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 the Saffell soil are used as woodland. A few areas are used for pasture or hay or as gravel pits.

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 soil is 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, the low available water capacity, 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 the 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 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 70. 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, brackenfern, poison oak, little bluestem, panicums, muscadine grape, flowering dogwood, blackjack oak, huckleberry, and turkey oak.

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 poorly 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 help to overcome this limitation.

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. 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 Saffell soil is in capability subclass VIe. The woodland ordination symbol is 7A.

SbB—Saffell-Maubila complex, 2 to 5 percent slopes

This map unit consists of the very deep, well drained Saffell soil and the moderately well drained Maubila soil. It is on narrow ridgetops in 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 Saffell soil makes up about 50 percent of the map unit, and the Maubila soil makes up about 35 percent. Slopes are generally short and complex. Most areas are irregular in shape. They range from 20 to 500 acres in size.

The Saffell soil is generally on the higher, more convex parts of the ridgetop. Typically, the surface layer is dark brown gravelly sandy loam about 6 inches thick. The subsurface layer, to a depth of 14 inches, is brownish yellow very gravelly sandy loam. The subsoil, to a depth of 44 inches, is red very gravelly sandy clay loam in the upper part and red gravelly sandy clay loam in the lower part. The substratum, to a depth of 65 inches, is yellowish red gravelly sandy loam.

Important properties of the Saffell soil—

Permeability: Moderate
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 Maubila soil is generally on lower parts of ridgetops. Typically, the surface layer is dark yellowish brown flaggy sandy loam about 2 inches thick. The subsurface layer, to a depth of 6 inches, is brownish yellow flaggy sandy loam. The subsoil, to a depth of 52 inches, is strong brown clay loam in the upper part; yellowish brown clay loam that has brownish, grayish, and reddish mottles in the next part; and mottled gray, strong brown, yellowish brown, and red clay in the lower part. The substratum, to a depth of 65 inches, is mottled gray, yellowish brown, and red clay loam.

Important properties of the Maubila soil—

Permeability: 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: Perched, at a depth of 2 to 3.5 feet from January to April
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Luverne and Smithdale soils. Also included are small areas of severely eroded soils. Luverne soils are in saddles. They have a reddish, clayey subsoil and do not have a significant content of ironstone within the profile. Smithdale soils are in landscape positions similar to those of the Saffell soil. They are loamy throughout the profile. The 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 as woodland. A few areas are used for pasture.

This map unit is poorly suited to cultivated crops. The main management concerns are the low fertility, the high content of coarse fragments, the low available water capacity of the Saffell soil, and the severe hazard of erosion. 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. Most crops respond well to systematic applications of lime and fertilizer.

This map unit is suited to pasture and hay. Erosion is a hazard when the soil surface is bare during the establishment of pasture. Coarse fragments on the surface may damage equipment. 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 map unit 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 70 for the Saffell soil and 75 for the Maubila soil. 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 little bluestem, panicums, greenbrier, poison oak, brackenfern, huckleberry, blackjack oak, turkey oak, and flowering dogwood.

This map unit has moderate limitations for the management of timber. The main limitations are the restricted use of equipment, seedling mortality, and plant competition. The clayey texture of the subsoil in areas of the Maubila soil 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 low available water capacity results in increased seedling mortality in areas of the Saffell soil. Increasing the number of trees planted helps to compensate for this limitation. 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 moderate limitations for building sites and severe limitations for local roads and streets and most kinds of sanitary facilities. The main limitations are the slow permeability and the low strength of the Maubila soil. 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 map unit 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 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 openland wildlife can be improved by planting grasses and other seed-producing plants around areas of cropland and pasture.

The Saffell and Maubila soils are in capability subclass IIIe. The woodland ordination symbol is 7A for the Saffell soil and 7A for the Maubila soil.

ScB—Smithdale sandy loam, 2 to 8 percent slopes

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

Typically, the surface layer is dark brown sandy loam about 5 inches thick. The subsurface layer, to a depth of 11 inches, is brownish yellow sandy loam. The subsoil, to a depth of 65 inches, is yellowish red sandy clay loam in the upper part and yellowish 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 Bama, Luverne, and Maubila soils. Bama soils are on slightly higher, smoother parts of ridges than the Smithdale soil. They do not have a significant decrease in the content of clay in the lower part of the subsoil. Luverne and Maubila soils are on the lower parts of slopes. They have a clayey texture in the upper part of the subsoil. 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 the Smithdale soil are used for woodland. A few small areas are used for cultivated crops, pasture, or hay.

This soil is poorly 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. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. 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, brackenfern, sumac, poison oak, greenbrier, huckleberry, 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.

ScD—Smithdale sandy loam, 5 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 200 acres in size.

Typically, the surface layer is dark brown sandy loam about 6 inches thick. The subsurface layer, to a depth of 10 inches, is yellowish brown sandy loam. The subsoil, to a depth of 65 inches, is yellowish red sandy clay loam in the upper part and yellowish 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 Kinston, Luverne, Saffell, and Suffolk soils. The poorly drained Kinston soils are on narrow flood plains. Luverne and Saffell soils are in landscape positions similar to those of the Smithdale soil. Luverne soils have a clayey subsoil. Saffell soils have more than 35 percent gravel in the upper part of the subsoil. Suffolk soils are on toe slopes and have a brownish subsoil. Also included are soils on slopes of less than 8 percent and 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 the Smithdale soil 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 soil is 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 the 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 help 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 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.

SdA—Subran fine sandy loam, 0 to 2 percent slopes

This very deep, moderately well drained soil is on broad ridgetops 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 fine sandy loam about 6 inches thick. The subsoil, to a depth of 65 inches, is dark yellowish brown and yellowish brown clay loam in the upper part; yellowish brown clay loam and clay that has grayish and brownish mottles in the next part; and mottled yellowish brown, light gray, and red clay in the lower part. Few to many nodules of iron and manganese oxides are 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 April
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Kipling and Vaiden soils. Kipling soils are in landscape positions similar to those of the Subran soil. They are somewhat poorly drained and have smectitic clay mineralogy. The somewhat poorly drained Vaiden soils are in slightly lower positions than the Subran soil. They have smectitic mineralogy. 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 Subran soil are used for cultivated crops, pasture, or hay.

This soil is well suited to cultivated crops. The main limitation is the wetness. This soil is friable and is 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 systematic applications of lime and fertilizer.

This soil is well suited to pasture and hay. Wetness is a moderate limitation. Shallow ditches help to remove excess surface water. Proper stocking rates, pasture rotation, and restricted grazing during prolonged 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 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 broomsedge bluestem, dallisgrass, johnsongrass, greenbrier, poison ivy, huckleberry, muscadine grape, and waxmyrtle.

This soil 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 sites 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 IIw. The woodland ordination symbol is 9W.

SdB—Subran loam, 2 to 5 percent slopes

This very deep, moderately well drained soil is on side slopes of the uplands. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 10 to 50 acres in size.

Typically, the surface layer is dark yellowish brown loam about 5 inches thick. The subsoil, to a depth of 75 inches, is dark yellowish brown and yellowish brown clay loam in the upper part; yellowish brown clay that has grayish, brownish, and reddish mottles in the next part; and mottled yellowish brown, light gray, and red clay in the lower part. Few to many nodules of iron and manganese oxides are 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 April
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 the Subran soil are used for cultivated crops, pasture, or hay. A few areas are used as woodland.

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 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, poison ivy, huckleberry, muscadine grape, waxmyrtle, and flowering dogwood.

This soil 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 IIIe. The woodland ordination symbol is 9W.

SeA—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 5 inches thick. The subsurface layer, to a depth of 16 inches, is very dark gray clay that has a few olive mottles. The subsoil, to a depth of 60 inches, is dark grayish brown clay that has brownish mottles in the upper part; olive gray and dark grayish brown clay that has grayish and brownish mottles in the next part; and mottled dark grayish brown, light olive brown, and yellowish brown clay in the lower part.

Important properties of the Sucarnoochee soil—

Permeability: Very slow
Available water capacity: High
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 January to April
Shrink-swell potential: High
Flooding: Frequent

Included in mapping are a few small areas of Kipling and Vaiden soils. Also included are small areas of poorly drained soils in depressions. The Kipling and Vaiden soils are in slightly higher positions on the edges of mapped areas. They 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 the Sucarnoochee 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.

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 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, cherrybark oak, and yellow-poplar. On the basis of a 50-year site curve, the site index for sweetgum is 100. The average annual growth of well stocked, even-aged, unmanaged stands of sweetgum at 30 years of age is 1.4 cords per acre per year. The understory vegetation consists mainly of switchcane, honey locust, poison ivy, winged elm, 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 tree planting rate. 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, wetness, very slow permeability, high shrink-swell potential, and low strength 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 10W.

SfB—Suffolk fine sandy loam, 1 to 5 percent slopes

This very deep, well drained soil is on toe slopes and terraces adjacent to large streams in the northeastern part of the county. 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 dark brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 9 inches, is yellowish brown sandy loam. The subsoil, to a depth of 53 inches, is yellowish brown sandy loam and sandy clay loam that has brownish mottles in the upper part. It is strong brown sandy clay loam and sandy loam that has brownish and reddish mottles in the lower part. The substratum, to a depth of 65 inches, is yellowish brown sandy loam that has brownish, grayish, and reddish mottles.

Important properties of the Suffolk 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: More than 6 feet deep
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Saffell and Smithdale soils. Saffell soils are on the lower parts of slopes. They have a reddish subsoil and have more than 35 percent gravel in the subsoil. Smithdale soils are on slightly higher knolls or more convex 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 the Suffolk 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; however, erosion is a hazard in the more sloping areas. 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 lime and fertilizer.

This soil is well suited to pasture and hay, and it has few limitations for these uses. Grasses such as coastal bermudagrass or bahiagrass are well suited. Applications of lime and fertilizer improve fertility and increase the production of forage and hay. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet and dry periods help to keep the pasture in good conditions.

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 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 blackberry, muscadine grape, little bluestem, common persimmon, greenbrier, huckleberry, flowering dogwood, 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. 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 limitations 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 Suffolk soil is in capability subclass IIe. The woodland ordination symbol is 9A.

SmB—Sumter silty clay loam, 1 to 3 percent slopes

This moderately deep, well drained soil is on broad ridgetops 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 grayish brown silty clay loam about 7 inches thick. The subsoil, to a depth of 30 inches, is light brownish gray silty clay loam in the upper part and pale yellow silty clay loam in the lower part. The substratum, to a depth of 80 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, Oktibbeha, and Watsonia soils. Demopolis and Watsonia soils are on ridge crests. They are shallow over bedrock. Oktibbeha soils are on the lower parts of slopes. They have a reddish subsoil and are acid in the upper part of the subsoil. 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 the Sumter soil are used for pasture and hay. A few areas are used for cultivated crops, woodland, or as sites for homes.

This soil is suited to cultivated crops. The main limitations are the poor tilth and the high content of calcium carbonate. Erosion is a moderate hazard if cultivated crops are grown. The surface layer is difficult to keep in good tilth in areas 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 well suited to pasture and hay. The commonly grown grasses and legumes include tall fescuegrass, johnsongrass, white clover, and red clover (fig. 7). 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 20 inches of the surface. 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 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 restricts the use of equipment when the soil is wet. Harvesting activities should be planned for

Figure 7.—Dairy cattle grazing a tall fescuegrass-white clover pasture in an area of Sumter silty clay loam, 1 to 3 percent slopes. This soil is well suited to pasture.

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 depth to bedrock, the very slow permeability, and the moderate shrink-swell potential. Properly designing foundations and footings and diverting runoff away from the 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 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. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers.

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

SnD2—Sumter silty clay loam, 3 to 8 percent slopes, eroded

This moderately deep, well drained soil is on side slopes and narrow ridges 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 very dark grayish brown silty clay about 4 inches thick. The subsoil, to a depth of 28 inches, is light olive brown silty clay. The substratum, to a depth of 80 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, Oktibbeha, and Watsonia soils. Demopolis and Watsonia soils are on the upper parts of slopes or on narrow ridges. They are shallow over bedrock. Oktibbeha soils are on the lower parts of slopes. They have a reddish subsoil and are acid in the upper part of the subsoil. 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 the Sumter soil are used for pasture and hay. A few areas are used for cultivated crops 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 in areas 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 20 inches of the surface. 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 depth to bedrock, the very slow permeability, and the moderate shrink-swell potential. Properly designing foundations and footings and diverting runoff away from the 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 IVe. The woodland ordination symbol is 3C.

SoB2—Sumter-Oktibbeha complex, 1 to 3 percent slopes, eroded

This map unit consists of the moderately deep, well drained Sumter soil and the very deep, moderately well drained Oktibbeha 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 Oktibbeha soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

The Sumter soil is on the flatter, less convex parts of ridgetops. Typically, the surface layer is very dark grayish brown silty clay about 6 inches thick. The subsoil, to a depth of 38 inches, is light yellowish brown and light olive brown silty clay. The substratum, to a depth of 80 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 Oktibbeha soil is on the crests of ridges. Typically, the surface layer is dark grayish brown clay about 4 inches thick. The subsoil, to a depth of 65 inches, is yellowish red clay in the upper part, light yellowish brown clay that has grayish and brownish mottles in the next part, and light olive brown silty clay 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 Demopolis and Watsonia 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. Watsonia soils are in landscape positions similar to those of the Oktibbeha soil. They are acid in the upper part of the subsoil 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 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 suited to cultivated crops. The main limitations are the poor tilth and the hazard of erosion. Erosion is a moderate hazard when these soils are cultivated. Sheet and rill erosion are evident in most areas and shallow gullies are common. 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 well 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. The Sumter 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 Oktibbeha 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 90 for loblolly pine. 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, 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 slow and very slow permeability, the shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Properly designing foundations and footings and diverting runoff water away from the 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.

The Sumter and Oktibbeha soils are in capability subclass IIIe. The woodland ordination symbol is 3C for the Sumter soil and 9C for the Oktibbeha soil.

SoD2—Sumter-Oktibbeha complex, 3 to 8 percent slopes, eroded

This map unit consists of the moderately deep, well drained Sumter soil and the very deep, moderately well drained Oktibbeha 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 Oktibbeha soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 500 acres in size.

The Sumter soil is on the middle and upper parts of slopes. Typically, the surface layer is very dark grayish brown silty clay about 3 inches thick. The subsoil, to a depth of 34 inches, is light olive brown silty clay. The substratum, to a depth of 80 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 Oktibbeha soil is on the lower parts of slopes. Typically, the surface layer is dark yellowish brown clay about 3 inches thick. The subsoil, to a depth of 60 inches, is yellowish red and red clay in the upper part; yellowish brown clay that has grayish and brownish mottles in the next part; and light olive brown clay that has brownish and grayish mottles 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 Demopolis, Sucarnoochee, and Watsonia 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. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains. Watsonia soils are in landscape positions similar to those of the Oktibbeha soil. They are acid in the upper part of the subsoil 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 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 and the hazard of erosion. Erosion is a severe hazard when these soils are cultivated. Sheet and rill erosion are evident in most areas, and shallow gullies are common. 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 well 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. The Sumter 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 Oktibbeha 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 90 for loblolly pine. 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, 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 slow and very slow permeability, the shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Properly designing foundations and footings and diverting runoff water away from the 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 Oktibbeha soils are in capability subclass IVe. The woodland ordination symbol is 3C for the Sumter soil and 9C for the Oktibbeha soil.

VaA—Vaiden 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 20 to 600 acres in size.

Typically, the surface layer is very dark grayish brown clay about 6 inches thick. The subsoil, to a depth of 72 inches, is yellowish brown clay that has brownish, grayish, and reddish mottles in the upper part; mottled yellowish brown, strong brown, gray, and yellowish red clay in the next part; and mottled light olive brown, olive, gray, and yellowish brown clay in the lower part. Soft masses and concretions of calcium carbonate are in the lower part.

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 Eutaw and Kipling soils. The poorly drained Eutaw soils are in slight depressions. They have grayish colors in the upper part of the subsoil. Kipling soils are in landscape positions similar to those of the Vaiden soil. They have less clay in the subsoil than the Vaiden soil. Included soils make up about 10 percent of the map unit, but individual areas are generally less than 5 acres in size.

Figure 8.—Corn in an area of Vaiden clay, 0 to 1 percent slopes. This field was planted under optimum moisture conditions. It is difficult to prepare a seedbed in areas of this soil if it is plowed when too wet or too dry.

Most areas of the Vaiden 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 (fig. 8). 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 it becomes cloddy if tilled when 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 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. 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. Properly designing foundations and footings and diverting runoff water away from the 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.

VaB—Vaiden clay, 1 to 3 percent slopes

This very deep, somewhat poorly drained soil is on side slopes in the uplands of the Blackland Prairie. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 20 to 800 acres in size.

Typically, the surface layer is dark brown clay about 5 inches thick. The subsoil, to a depth of 60 inches, is light olive brown clay that has reddish and grayish mottles in the upper part; mottled light gray, strong brown, yellowish brown, and red clay in the next part; and light olive brown clay that has reddish and grayish mottles in the lower part. Soft masses and concretions of calcium carbonate are in the lower part.

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, Oktibbeha, and Sucarnoochee soils. Kipling soils are in positions similar to those of the Vaiden soil. They have less clay in the subsoil than the Vaiden soil. Oktibbeha soils are on the more convex slopes, and they have reddish colors in the upper part of the subsoil. Sucarnoochee soils are on narrow flood plains. They are alkaline in the upper part of the subsoil and are subject to frequent flooding. 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 Vaiden 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 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 it becomes cloddy if tilled when too wet or too dry.

Figure 9.—An area of Vaiden clay, 1 to 3 percent slopes. This well managed stand of tall fescuegrass provides excellent forage for these steers. A catfish pond is in the background. This Vaiden soil is well suited as pasture and as a site for ponds.

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 well suited to pasture and hay. Tall fescuegrass, dallisgrass, and bahiagrass are the main grasses grown (fig. 9). 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 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 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. Properly designing foundations and footings and diverting runoff water away from the 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 IIIe. The woodland ordination symbol is 8C.

Prime Farmland

In this section, prime farmland is defined, and the soils in Perry County that are considered prime farmland are listed. 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 137,000 acres, or about 30 percent of the total area, meets the soil requirements for prime farmland. The prime farmland is scattered throughout the county; however, most areas are in the southern and central parts, mainly in general soil map units 1, 2, 3, and 4, which are described under the heading “General Soil Map Units.” About 80,000 acres is used for cultivated crops.

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 in Perry County are:

AnA	Annemaine silt loam, 0 to 2 percent slopes, rarely flooded
BaA	Bama fine sandy loam, 0 to 2 percent slopes
BaB	Bama fine sandy loam, 2 to 5 percent slopes
CaA	Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded
CaB	Cahaba sandy loam, 2 to 5 percent slopes, rarely flooded
EnA	Eunola sandy loam, 0 to 2 percent slopes, rarely flooded
GrA	Greenville loam, 0 to 2 percent slopes
GrB	Greenville loam, 2 to 5 percent slopes
KpB	Kipling clay loam, 1 to 5 percent slopes
LnB	Luverne sandy loam, 2 to 5 percent slopes
OaA	Ochlockonee sandy loam, 0 to 1 percent slopes, occasionally flooded
OkB	Okolona silty clay loam, 0 to 3 percent slopes
OtC	Oktibbeha clay loam, 1 to 5 percent slopes
SdA	Subran fine sandy loam, 0 to 2 percent slopes
SdB	Subran loam, 2 to 5 percent slopes
SfB	Suffolk fine sandy loam, 1 to 5 percent slopes
VaA	Vaiden clay, 0 to 1 percent slopes
VaB	Vaiden clay, 1 to 3 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 soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Kenneth M. Rogers, conservation agronomist, Natural Resources Conservation Service, helped to 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 1990, approximately 100,000 acres of cropland and 24,000 acres of pasture were in Perry County *(1)*. Approximately 37,000 acres of cotton, 24,500 acres of corn, 19,000 acres of soybeans, 9,000 acres of grain sorghum, and 6,500 acres of wheat were planted in Perry County in 1990. Also, 5,500 acres of hay and 210,000 pounds of pecans were harvested *(1)*. A small acreage of vegetable crops is grown in the eastern part of the county. 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 northern part of the county.

The potential in Perry County for the increased production of food and fiber is good. About 130,000 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 Perry 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 Annemaine, Bama, Cahaba, Greenville, Ocilla, and Suffolk 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 is 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 Perry County *(16)*. In areas where the slope is more than two percent, erosion is a potential hazard. Bama, Cahaba, Greenville, Luverne, Oktibbeha, Smithdale, and Sumter 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 Greenville, Luverne, Oktibbeha, 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 levels 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, Greenville, Luverne, and Smithdale soils. Soils of the Blackland Prairie, such as Oktibbeha, Okolona, and Vaiden soils, are generally poorly suited to terracing because of the very slow rate of water infiltration. The use of buffer strips helps to control 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, Greenville, Luverne, Smithdale, and Vaiden soils.

Soil blowing can be a management concern in early spring on 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 generally windy. Additional information regarding the design of erosion-control practices is available at the local office of the Natural Resources Conservation Service.

Perry 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 Greenville, Luverne, Subran, and Oktibbeha 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 Perry 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. Some 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 areas. The compacted layers, which are called plow pans 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. The soils that readily develop traffic pans include Bama, Cahaba, Greenville, Luverne, Smithdale, and Suffolk soils.

Soil tilth is an important factor in plant growth because it influences the rate of water infiltration into the soil. The soils considered to have good tilth have a granular structure and many pores in the surface layer. Tilth is mostly affected by past tillage practices and the degree of erosion that has occurred. Soils of the Blackland Prairie, such as Okolona, 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 medium or high in most of the soils in the Blackland Prairie area in Perry County. Most of the soils on terraces in the Coastal Plain and some of the 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 levels 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 Ochlockonee and Ocilla 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 Eutaw, Kinston, Mantachie, Minter, Myatt, and Sucarnoochee 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 Perry County. Rye, ryegrass, oats, and wheat are grown as annual cool-season grass forage. Millet, sorghum, 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, Greenville, Ochlockonee, and Smithdale soils in the Coastal Plain and Okolona soils in 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 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 the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. 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 forest land makes up 324,200 acres, or about 71 percent of the total land area in Perry County. The forested acreage increased by about 8,800 acres from 1982 to 1990, primarily because of the conversion of cropland and pasture to forest land *(17)*. Private individuals own about 50 percent of the forest land in the county. The forest industry and private corporations own about 41 percent of the forest land, and the United States Forest Service owns the remaining 9 percent *(17)*.

The forest types in Perry County include 12,900 acres of longleaf-slash pine, 149,600 acres of loblolly-shortleaf pine, 58,700 acres of oak-pine, 61,000 acres of oak-hickory, and 42,000 acres of oak-gum-cypress. The forests in Perry County contain about 85,900 acres of sawtimber, 105,300 acres of poletimber, and 133,000 acres of seedlings and saplings *(17)*.

Most of the soils in the Coastal Plain and the acid soils in the Blackland Prairie have a site index of 80 or above for loblolly pine. The alkaline soils in the Blackland Prairie, such as Demopolis, Okolona, Sucarnoochee, and Sumter soils, are not suited to pine trees. The Minter soils and Fluvaquents are also unsuited to pine trees because of the 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; 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 F.

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 *(4, 5, 7, 15)*.

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

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 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, biologist, Natural Resources Conservation Service, helped prepare this section.

Because of its geographic location, climate, land use patterns, and other characteristics, Perry County supports a variety of game animals, nongame animals, and furbearers. Common game species include bobwhite quail, mourning dove, cottontail rabbit, gray squirrel, fox squirrel, whitetailed deer, wild turkey, and various species of ducks and geese. Common nongame species include armadillo, snakes, blackbirds, bluebirds, bluejays, cardinals, crows, egrets, herons, meadowlarks, mockingbirds, sparrows, thrushes, vireos, warblers, and woodpeckers. Common furbearers include beaver, bobcat, coyote, fox, mink, muskrat, otter, and raccoon. Endangered species include the bald eagle and 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 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, barnyard grass, 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, 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, turtles, rails, and kingfishers.

Aquaculture

H. D. Kelly, biologist, Natural Resources Conservation Service, helped prepare this section.

Aquaculture is the controlled production and harvest of animals or plants grown in or on water. In Perry 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 used in Perry County. The county currently has about 1,300 acres of catfish ponds and about 1,500 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. Eutaw, Kipling, Okolona, Oktibbeha, Sucarnoochee, Sumter, and Vaiden soils in the Blackland Prairie and Luverne, Myatt, and Subran soils in 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 for 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 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 of the soils suitable for pond sites in Perry County require applications of lime; however, ponds constructed on soils in the watershed of the Blackland Prairie generally do 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.

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

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

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

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

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

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

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock 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. These results are reported in table 20.

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 *(3)* and the system adopted by the American Association of State Highway and Transportation Officials *(2)*.

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. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 20.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

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

Physical 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.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, more than 6 percent; and *very high*, greater than 9 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 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.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. 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 *(8, 18)*.

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 *(8)*.

Extractable acidity—method of Hajek, Adams, and Cope *(8)*.

Cation-exchange capacity—sum of cations (5A3a).

Base saturation—method of Hajek, Adams, and Cope *(8)*.

Reaction (pH)—1:1 water dilution (8C1a).

Engineering Index Test Data

Table 20 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section “Soil Series and Their Morphology.” The soil samples were tested by the Alabama Highway Department, Bureau of Materials and Tests, Montgomery, Alabama.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); Moisture density—T 99 (AASHTO), D 698 (ASTM).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(14, 20)*. 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 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Cahaba series, which are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(19)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(14)* and in "Keys to Soil Taxonomy" *(20)*. 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."

Annemaine Series

The Annemaine series consists of very deep, moderately well drained soils that formed in stratified clayey and loamy alluvium. They are on low stream terraces and are subject to rare flooding. Slopes range from 0 to 2 percent. The soils of the Annemaine series are fine, mixed, semiactive, thermic Aquic Hapludults.

Annemaine soils are commonly associated with

Cahaba, Eunola, and Myatt soils. The well drained Cahaba soils are in slightly higher positions on low terraces. They are fine-loamy. Eunola soils are in slightly lower positions on low terraces. They are fine-loamy. The poorly drained Myatt soils are in lower, more concave positions.

Typical pedon of Annemaine silt loam, 0 to 2 percent slopes, rarely flooded, about 2.5 miles northwest of Suttle, about 1,300 feet south and 815 feet east of the northwest corner of sec. 7, T. 18 N., R. 9 E.

Ap—0 to 5 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; moderately acid; abrupt smooth boundary.

Bt1—5 to 18 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few faint clay films on faces of peds; common fine flakes of mica; few dark brown wormcasts; very strongly acid; clear wavy boundary.

Bt2—18 to 37 inches; yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; common fine flakes of mica; common medium faint yellowish red (5YR 4/6) and common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation; common medium distinct gray (10YR 6/1) iron depletions; very strongly acid; gradual wavy boundary.

Bt3—37 to 42 inches; yellowish red (5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; common fine flakes of mica; many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; many fine and medium distinct gray (10YR 6/1) iron depletions; very strongly acid; clear wavy boundary.

C1—42 to 58 inches; 40 percent yellowish red (5YR 4/6), 30 percent strong brown (7.5YR 5/6), and 30 percent gray (10YR 6/1) loam; massive; friable; many fine flakes of mica; the areas of yellowish red and strong brown are iron accumulations and the areas of gray are iron depletions; very strongly acid; gradual wavy boundary.

C2—58 to 75 inches; 40 percent yellowish red (5YR 4/6), 30 percent strong brown (7.5YR 5/6), and 30 percent gray (10YR 6/1) sandy loam; massive; very friable; many fine flakes of mica; the areas of yellowish red and strong brown are iron accumulations and the areas of gray are iron depletions; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches or more. Reaction ranges from very strongly acid to strongly acid throughout the profile, except in areas where the surface layer has been limed.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. It has few to many redox depletions in shades of gray and redox accumulations in shades of brown. Texture is silty clay loam, clay loam, silty clay, or clay.

The C horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8; or it has no dominant matrix color and is multicolored in shades of red, brown, or gray. Texture is sandy loam, loam, or sandy clay loam. It commonly has strata of fine and coarse textured materials.

Bama Series

The Bama series consists of very deep, well drained soils that formed in loamy sediments (fig.10). They are on broad ridgetops in the uplands. Slopes range from 0 to 5 percent. The soils of the Bama series are fine-loamy, siliceous, subactive, thermic Typic Paleudults.

Bama soils are commonly associated with Greenville, Luverne, Smithdale, and Subran soils. Greenville soils are in landscape positions similar to those of the Bama soils. They have a clayey kandic horizon. Luverne and Smithdale soils are on side slopes at lower elevations. Luverne soils have a clayey argillic horizon. The argillic horizon of the Smithdale soils has a reduction in clay content of 20 percent or more within a depth of 60 inches. The moderately well drained Subran soils are in landscape positions similar to those of the Bama soils but at a slightly lower elevation. They have a clayey argillic horizon.

Typical pedon of Bama fine sandy loam, 0 to 2 percent slopes, about 2.5 miles southeast of Radford, 530 feet south and 2,380 feet east of the northwest corner of sec. 3, T. 18 N., R. 9 E.

Ap—0 to 6 inches; dark brown (7.5YR 4/4) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; moderately acid; clear wavy boundary.

Bt1—6 to 14 inches; red (2.5YR 4/6) clay loam; weak medium subangular blocky structure; friable; common medium and fine roots; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—14 to 26 inches; red (2.5YR 4/6) sandy clay

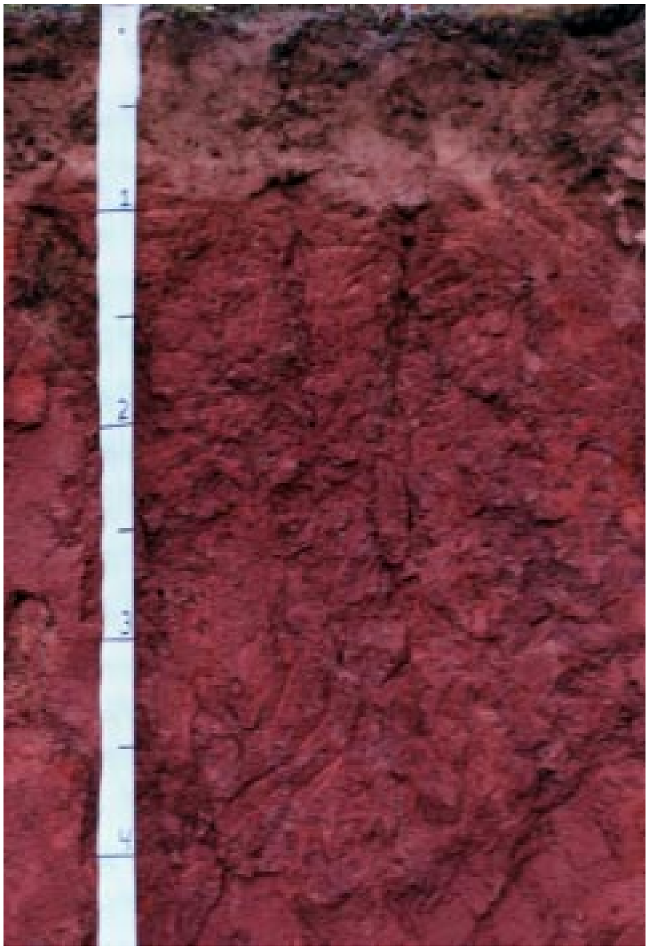

Figure 10.—A profile of Bama fine sandy loam. The subsoil, beginning at a depth of about 10 inches, is red clay loam and sandy clay loam.

loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt3—26 to 37 inches; red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky parting to moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; about 2 percent fine quartz gravel; very strongly acid; gradual smooth boundary.

Bt4—37 to 54 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt5—54 to 75 inches; dark red (2.5YR 3/6) sandy clay loam; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches or more. Reaction ranges from very strongly acid to strongly acid throughout the profile, except in areas where lime has been applied.

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

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 or 8. The lower part, below a depth of 40 inches, has colors similar to those of the upper part but may also have hue of 2.5YR, value of 3, and chroma of 4 or 6. Texture is sandy clay loam, loam, or clay loam.

Cahaba Series

The Cahaba series consists of very deep, well drained soils that formed in loamy and sandy alluvium. They are on low stream terraces and are subject to rare flooding. Slopes range from 0 to 5 percent. The soils of the Cahaba series are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Cahaba soils are commonly associated with Annemaine, Eunola, Minter, and Myatt soils. The moderately well drained Annemaine and Eunola soils are in slightly lower, less convex positions on low terraces. Annemaine soils have a clayey argillic horizon. Eunola soils have a brownish subsoil. The poorly drained Minter and Myatt soils are in slightly lower landscape positions than the Cahaba soils. They have a grayish subsoil.

Typical pedon of Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded, about 1 mile northwest of Suttle, 3,750 feet south and 490 feet west of the northeast corner of sec. 8, T. 18 N., R. 9 E.

Ap—0 to 7 inches; dark brown (7.5YR 3/2) sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

BA—7 to 15 inches; strong brown (7.5YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; common spots and streaks of dark yellowish brown (10YR 3/4) sandy loam; strongly acid; clear wavy boundary.

Bt1—15 to 29 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—29 to 45 inches; yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; about 2 percent fine gravel; strongly acid; clear wavy boundary.

C—45 to 65 inches; yellowish red (5YR 5/8) sandy loam; massive; very friable; about 5 percent fine gravel; 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 in areas where lime has been applied.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The BA horizon or AB horizon, if it occurs, has colors similar to those of the Ap horizon. Texture is sandy loam, fine sandy loam, or loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, loam, or clay loam.

The C horizon has hue of 2.5YR to 7.5YR, value of 5 or 6, and chroma of 4 to 8. Texture is sand, loamy sand, or sandy loam. Most pedons have thin strata of finer and coarser textured material. Some pedons may have thin strata of gravel below a depth of 40 inches.

Demopolis Series

The Demopolis series consists of shallow, well drained soils that formed in loamy residuum derived from soft limestone (chalk) (fig. 11). They are on narrow ridgetops and on side slopes in uplands of the Blackland Prairie. Slopes range from 1 to 8 percent. The soils of the Demopolis series are loamy, carbonatic, thermic, shallow Typic Udorthents.

Demopolis soils are commonly associated with Oktibbeha, Sumter, and Watsonia soils. Oktibbeha and Watsonia soils are in slightly lower positions than the Demopolis soils. Oktibbeha soils are very deep and have an acid, very-fine textured argillic horizon. Watsonia soils have a clayey subsoil that is acid in the upper part. Sumter soils are in landscape positions similar to those of the Demopolis soils. They are moderately deep over bedrock.

Typical pedon of Demopolis silt loam, in an area of Demopolis-Watsonia complex, 1 to 3 percent slopes; about 2.6 miles south of Tayloe, 75 feet south and 500 feet west of the northeast corner of sec. 35, T. 17 N., R. 6 E.

Ap—0 to 5 inches; dark grayish brown (2.5Y 4/2) silt loam; moderate medium granular structure; friable; many fine and medium roots; about 10 percent calcium carbonate nodules; common soft fragments of chalk; strongly effervescent; moderately alkaline; clear smooth boundary.

Figure 11.—A profile of Demopolis silt loam. This soil is shallow and loamy, and it overlies soft limestone (chalk) at a depth of about 1 foot.

C—5 to 13 inches; grayish brown (2.5Y 5/2) loam; massive; common fine and medium roots; many soft fragments of chalk; many fine and medium concretions of calcium carbonate; violently effervescent; moderately alkaline; clear wavy boundary.

Cr—13 to 80 inches; light gray (5Y 7.2) soft limestone (chalk); moderate thick platy rock structure; very firm; few fine roots between plates and in fractures; violently effervescent; moderately alkaline.

The thickness of the soil over level-bedded, soft limestone (chalk) ranges from 10 to 20 inches. Reaction is slightly alkaline or moderately alkaline throughout the profile.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. It has few to many fragments of soft limestone (chalk). The content of calcium carbonate nodules or concretions ranges from

2 to 10 percent. Texture is silt loam or silty clay loam.

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 fragments of soft limestone (chalk).

The Cr horizon is level-bedded, soft limestone (chalk). It has platy rock structure or is massive. It can be cut with difficulty with hand tools and is rippable by mechanized equipment.

Eunola Series

The Eunola series consists of very deep, moderately well drained soils that formed in loamy and sandy alluvium. They are on low stream terraces and are subject to rare flooding. Slopes range from 0 to 2 percent. The soils of the Eunola series are fine-loamy, siliceous, semiactive, thermic Aquic Hapludults.

Eunola soils are commonly associated with Annemaine, Cahaba, Minter, and Myatt soils. Annemaine soils are in landscape positions similar to those of the Eunola soils. They have a reddish, clayey argillic horizon. The well drained Cahaba soils are in slightly higher, more convex positions on stream terraces. They have a reddish subsoil. The poorly drained Minter and Myatt soils are in slightly lower positions. They have a grayish subsoil.

Typical pedon of Eunola sandy loam, 0 to 2 percent slopes, rarely flooded, about 3 miles south of Sprott, 600 feet north and 1,300 feet east of the southwest corner of sec. 7, T. 19 N., R. 9 E.

Ap1—0 to 6 inches; dark yellowish brown (10YR 3/4) sandy loam; weak medium granular structure; very friable; common medium and fine roots; strongly acid; abrupt smooth boundary.

Ap2—6 to 10 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; very friable; common medium and fine roots; very strongly acid; clear smooth boundary.

Bt1—10 to 15 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—15 to 23 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions; common medium distinct yellowish red (5YR 4/6) and red (2.5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt3—23 to 31 inches; brown (10YR 5/3) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; common faint clay films on faces of peds; many fine and medium prominent red (2.5YR 4/6) and yellowish red (5YR 4/6) masses of iron accumulation; many fine distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bt4—31 to 48 inches; yellowish brown (10YR 5/4) sandy clay loam; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; common fine black nodules (iron and manganese oxides); many fine and medium distinct light brownish gray (10YR 6/2) iron depletions; many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C—48 to 60 inches; yellowish brown (10YR 5/6) sandy loam; massive; friable; few thin strata of sandy clay loam; common fine black nodules (iron and manganese oxides); many medium distinct light gray (2.5Y 7/2) iron depletions; many medium faint strong brown (7.5YR 5/6) masses of iron accumulation; very 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, except in areas where lime has been applied.

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

The upper part of the Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. It has few or common redox depletions in shades of gray and redox accumulations in shades of brown and red. Texture is sandy loam, fine sandy loam, or sandy clay loam. The lower part of the horizon has colors similar to those of the upper part or it has no dominant matrix color and is multicolored in shades of gray, brown, or red. Texture is sandy loam or sandy clay loam.

The C or the 2C horizon commonly has no dominant matrix color and is multicolored in shades of gray, brown, or red. Texture is sand, loamy sand, or sandy loam. It commonly has pockets or layers of fine and coarse textured material.

Eutaw Series

The Eutaw series consists of very deep, poorly drained soils that formed in thick beds of acid clay underlain by alkaline, clayey sediments. They are in flat or depressional areas on uplands of the Blackland

Prairie. Slopes range from 0 to 1 percent. The soils of the Eutaw series are very-fine, smectitic, thermic Chromic Dystraquerts.

Eutaw soils are commonly associated with Okolona and Vaiden soils. The moderately well drained Okolona soils and the somewhat poorly drained Vaiden soils are in slightly higher, more convex landscape positions than the Eutaw soils. Okolona soils have thick, dark colored surface horizons. They are alkaline throughout the profile. Vaiden soils have brownish colors in the upper part of the subsoil.

Typical pedon of Eutaw clay, 0 to 1 percent slopes, about 0.8 miles east of Scott Station, 500 feet south and 900 feet west of the northeast corner of sec. 24, T. 19 N., R. 6 E.

Ap—0 to 4 inches; dark brown (10YR 4/3) clay; moderate medium angular blocky structure; very firm; many fine and medium roots; common medium distinct grayish brown (10YR 5/2) iron depletions; strongly acid; clear smooth boundary.

Bssg1—4 to 22 inches; light gray (10YR 7/2) clay; moderate medium subangular blocky structure; very firm; few fine roots; few large intersecting slickensides that have faintly striated surfaces; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bssg2—22 to 42 inches; light gray (5Y 7/2) clay; strong coarse angular blocky structure; very firm; few fine roots flattened on ped surfaces; common large intersecting slickensides that have distinct polished and grooved surfaces; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bssg3—42 to 60 inches; light gray (5Y 7/2) clay; moderate very coarse subangular blocky parting to strong medium angular blocky structure; very firm; few fine roots flattened on ped surfaces; many large intersecting slickensides that have distinct polished and grooved surfaces; many 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 ranges from extremely acid to strongly acid in the upper part of the solum and from very strongly acid to slightly alkaline in the lower part.

The A or the Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3.

The Bssg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many redox accumulations in shades of brown, yellow, or red. Texture is clay. In some pedons, the lower part of the Bssg horizon has no dominant matrix color and is multicolored in shades of gray, brown, yellow, and red. Some pedons have few or common soft masses and concretions of calcium carbonate in the lower part of the solum.

Greenville Series

The Greenville series consists of very deep, well drained soils that formed in clayey sediments. They are on broad ridgetops in the uplands. Slopes range from 0 to 5 percent. The soils of the Greenville series are fine, kaolinitic, thermic Rhodic Kandiudults.

Greenville soils are commonly associated with Bama and Smithdale soils. Bama soils are in slightly higher landscape positions and are fine-loamy. Smithdale soils are in lower landscape positions and are fine-loamy.

Typical pedon of Greenville loam, 0 to 2 percent slopes, about 3 miles southwest of Folsom, 2,100 feet south and 60 feet east of the northwest corner of sec. 36, T. 20 N., R. 6 E.

Ap—0 to 6 inches; dark reddish brown (5YR 3/3) loam; moderate medium granular structure; friable; common fine and medium roots; moderately acid; abrupt smooth boundary.

Bt1—6 to 37 inches; dark reddish brown (2.5YR 3/4) clay; moderate medium subangular blocky structure; firm; common fine roots; common faint clay films on faces of peds; few fine black nodules (iron and manganese oxides); few black stains on faces of some peds; strongly acid; gradual wavy boundary.

Bt2—37 to 65 inches; dark red (2.5YR 3/6) clay loam; weak medium subangular blocky structure; friable; common faint clay films on faces of peds; few fine black nodules (iron and manganese oxides); 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 in areas where the surface layer has been limed.

The A or Ap horizon has hue of 2.5YR to 7.5YR, value of 3 or 4, and chroma of 2 to 4.

The Bt horizon has hue of 10R or 2.5YR, value of 3, and chroma of 4 to 6. Texture is sandy clay, clay loam, or clay.

The Greenville soil in map unit GrA, Greenville loam, 0 to 2 percent slopes, is a taxadjunct to the series because the clay mineralogy is mixed rather than kaolinitic and the soil does not have a kandic horizon. These differences, however, do not significantly affect the use, management, or interpretations of the soil. Greenville soils that are taxadjuncts in this survey area are fine, mixed, subactive, thermic Rhodic Paleudults.

Iuka Series

The Iuka series consists of very deep, moderately well drained soils that formed in stratified loamy and sandy alluvium. They are on high parts of natural levees in flood plains and are subject to frequent flooding for brief periods in winter and spring in most years. Slopes range from 0 to 1 percent. The soils of the Iuka series are coarse-loamy, siliceous, active, acid, thermic Aquic Udifluvents.

Iuka soils are commonly associated with Kinston, Mantachie, and Ochlockonee soils. The poorly drained Kinston and somewhat poorly drained Mantachie soils are in slightly lower, more concave positions on flood plains. They are fine-loamy. The well drained Ochlockonee soils are in slightly higher, more convex positions on natural levees.

Typical pedon of Iuka sandy loam, in an area of Mantachie, Iuka, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 2 miles west of Perryville, 2,500 feet south and 800 feet west of the northeast corner of sec. 20, T. 19 N., R. 10 E.

A—0 to 7 inches; dark brown (7.5YR 4/4) sandy loam; weak fine granular structure; very friable; common fine medium and coarse roots; strongly acid; clear smooth boundary.

C1—7 to 18 inches; light yellowish brown (10YR 6/4) sandy loam; massive; very friable; common fine medium and coarse roots; few fine soft black masses (iron and manganese oxides); few fine faint light brownish gray (10YR 6/2) iron depletions; common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C2—18 to 24 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; very friable; common fine and medium roots; few fine soft black masses (iron and manganese oxides); few fine flakes of mica; common medium distinct light brownish gray (10YR 6/2) iron depletions; common medium distinct brown (10YR 5/3) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C3—24 to 38 inches; light yellowish brown (10YR 6/4) sandy loam; massive; very friable; common fine flakes of mica; few thin strata of loamy sand; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; common medium faint light gray (10YR 7/2) iron depletions; very strongly acid; clear wavy boundary.

Cg—38 to 60 inches; light gray (10YR 7/2) sandy loam; massive; very friable; common medium distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6. It has few or common redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and red. Texture is sandy loam, fine sandy loam, loam, or silt loam. This horizon commonly has thin strata of coarse and fine textured material.

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, yellow, and red. Texture is loamy sand, sandy loam, fine sandy loam, loam, or silt loam. This horizon commonly has thin strata of coarse and fine textured material.

Jedburg Series

The Jedburg series consists of very deep, somewhat poorly drained soils that formed in loamy and sandy alluvium. They are on stream terraces. Slopes range from 0 to 2 percent. The soils of the Jedburg series are fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults.

Jedburg soils are commonly associated with Myatt and Ocilla soils. The poorly drained Myatt soils are in less convex positions at slightly lower elevations. Ocilla soils are in slightly higher landscape positions. They have a thick, sandy epipedon.

Typical pedon of Jedburg fine sandy loam, in an area of Ocilla-Jedburg complex, 1 to 3 percent slopes; about 1.7 miles northeast of Vilula, 1,100 feet north and 1,150 feet east of the southwest corner of sec. 34, T. 19 N., R. 8 E.

A—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 faint yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear smooth boundary.

E—7 to 14 inches; brown (10YR 5/3) fine sandy loam;

weak coarse subangular blocky structure; very friable; many fine and medium roots; few fine soft black masses (iron and manganese oxides); common medium distinct strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/4) masses of iron accumulation; few medium faint grayish brown (10YR 5/2) iron depletions; very strongly acid; clear smooth boundary.

BE—14 to 20 inches; light olive brown (2.5Y 5/4) fine sandy loam; moderate medium subangular blocky structure; friable; common fine roots; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; common coarse faint grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

Btg1—20 to 25 inches; light brownish gray (10YR 6/2) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and few medium prominent yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg2—25 to 44 inches; grayish brown (2.5Y 5/2) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common distinct clay films on faces of peds; common medium prominent red (2.5YR 4/8), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg3—44 to 65 inches; grayish brown (2.5Y 5/2) clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; many medium prominent red (2.5YR 4/8) and strong brown (7.5YR 5/6) 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 in areas where the surface layer has been limed.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 2 or 3.

The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4. Texture is loamy fine sand, fine sandy loam, or loam.

The BE horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 4. Texture is fine sandy loam, loam, or silt loam.

The Btg horizon 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 brown, red, and yellow. Texture is sandy clay loam or clay loam.

Kinston Series

The Kinston series consists of very deep, poorly drained soils that formed in stratified loamy and sandy alluvium. They are on low parts of flood plains and are subject to frequent flooding for brief periods in winter and spring in most years. Slopes range from 0 to 1 percent. The soils of the Kinston series are fine-loamy, siliceous, semiactive, acid, thermic Typic Fluvaquents.

Kinston soils are commonly associated with Fluvaquents, Iuka, Mantachie, and Ochlockonee soils. The very poorly drained Fluvaquents are in depressions and are ponded for long periods. The moderately well drained Iuka, somewhat poorly drained Mantachie, and well drained Ochlockonee soils are in slightly higher, more convex positions on flood plains. Iuka and Ochlockonee soils are coarse-loamy. Mantachie soils are brownish in the upper part of the subsoil.

Typical pedon of Kinston silt loam, in an area of Mantachie, Iuka, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 2.5 miles northeast of Levert, 1,800 feet north and 1,275 feet west of the southeast corner of sec. 19, T. 21 N., R. 9 E.

A—0 to 5 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; very friable; many fine medium and coarse roots; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation in root channels; moderately acid; clear smooth boundary.

Cg1—5 to 12 inches; grayish brown (2.5Y 5/2) loam; massive; friable; many fine medium and coarse roots; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; moderately acid; clear wavy boundary.

Cg2—12 to 24 inches; grayish brown (2.5Y 5/2) sandy clay loam; massive; friable; many fine medium and coarse roots; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; strongly acid; gradual smooth boundary.

Cg3—24 to 36 inches; dark grayish brown (2.5Y 4/2) clay loam; massive; friable; common fine roots; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual smooth boundary.

Cg4—36 to 60 inches; dark gray (5Y 4/1) clay loam; massive; firm; few fine roots; strongly acid.

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

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It has few or common redox accumulations in shades of brown, red, and yellow. The upper part of the horizon is sandy loam, fine sandy loam, loam, or sandy clay loam. The lower part is loamy sand, sandy loam, loam, sandy clay loam, or clay loam.

Kipling Series

The Kipling series consists of very deep, somewhat poorly drained soils that formed in clayey marine sediments. They are on uplands of the Blackland Prairie. Slopes range from 1 to 5 percent. The soils of the Kipling series are fine, smectitic, thermic Vertic Paleudalfs.

Kipling soils are commonly associated with Oktibbeha, Sucarnoochee, Sumter, and Vaiden soils. The moderately well drained Oktibbeha soils are in slightly higher landscape positions. They have a very-fine texture. Sucarnoochee soils are on narrow flood plains. They are alkaline throughout the profile. Sumter soils are in slightly lower landscape positions. They are moderately deep over bedrock and are alkaline throughout the profile. Vaiden soils are in smoother, less sloping landscape positions. They have a very-fine texture.

Typical pedon of Kipling clay loam, 1 to 5 percent slopes, about 8 miles south of Uniontown, 400 feet north and 300 feet west of the southeast corner of sec. 19, T. 16 N., R. 6 E.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium subangular blocky structure; firm; many fine and medium roots; moderately acid; clear smooth boundary.

Bt1—5 to 9 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; common fine roots; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; common medium distinct light gray (5Y 7/2) iron depletions; very strongly acid; gradual wavy boundary.

Bt2—9 to 23 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; very firm; few fine roots; common faint clay films on faces of peds; many fine and medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; many fine and medium distinct gray (10YR 6/1) iron depletions; very strongly acid; clear wavy boundary.

Btss1—23 to 48 inches; 25 percent light gray (5Y 7/1), 25 percent strong brown (7.5YR 5/6), 25 percent yellowish brown (10YR 5/6), and 25 percent red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; very firm; few large intersecting slickensides with faint polished and grooved surfaces; the areas of strong brown, yellowish brown, and red are masses of iron accumulation and the areas of light gray are iron depletions; very strongly acid; clear wavy boundary.

Btss2—48 to 65 inches; light olive brown (2.5Y 5/6) clay; weak very coarse subangular and angular blocky structure; very firm; common large intersecting slickensides with distinct polished and grooved surfaces; common medium distinct light gray (5Y 7/1) iron depletions; common medium distinct red (2.5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bkss—65 to 80 inches; light olive brown (2.5Y 5/4) clay; weak very coarse subangular and angular blocky structure; very firm; common large intersecting slickensides which have distinct polished and grooved surfaces; common medium concretions of calcium carbonate; few fine black masses (iron and manganese oxides); common medium faint light brownish gray (2.5Y 6/2) iron depletions on faces of peds; slightly alkaline.

The thickness of the solum is more than 60 inches. The depth to alkaline clay ranges from 40 to 80 inches. Reaction is very strongly acid or strongly acid in the Ap, Bt, and Btss horizons, except in areas where the surface layer has been limed. Reaction ranges from slightly acid to moderately alkaline in the Bkss horizon.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The Bt horizon has hue of 7.5YR or 10YR, 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, 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 or clay.

The Btss and Bkss horizons have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 6; or they have no dominant matrix color and are multicolored in shades of olive, brown, red, and gray. These horizons have few to many redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. The Bkss horizon has few to many soft masses or concretions of calcium carbonate. Texture is silty clay or clay.

Figure 12.—A profile of Luverne sandy loam. The subsoil is yellowish red clay and has subangular blocky structure. The substratum, at a depth of about 40 inches, is thinly stratified.

Luverne Series

The Luverne series consists of very deep, well drained soils that formed in stratified clayey and loamy marine sediments (fig. 12). They are on narrow ridgetops and on side slopes in the uplands. Slopes range from 2 to 35 percent. The soils of the Luverne series are fine, mixed, semiactive, thermic Typic Hapludults.

Luverne soils are commonly associated with Bama, Maubila, Saffell, and Smithdale soils. Bama soils are on broad ridgetops at higher elevations than the Luverne soils. They are fine-loamy. Maubila, Saffell, and Smithdale soils are in landscape positions similar to those of the Luverne soils. Maubila soils are moderately well drained and have a significant content of ironstone fragments in the surface layer. Saffell soils are loamy-skeletal. Smithdale soils are fine-loamy.

Typical pedon of Luverne sandy loam, in an area of Luverne-Smithdale complex, 15 to 35 percent slopes; about 2.9 miles east of Sprott, 450 feet north and 300 feet west of the southeast corner of sec. 28, T. 20 N., R. 9 E.

A—0 to 3 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; common fine medium and coarse roots; moderately acid; clear smooth boundary.

Bt1—3 to 21 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm; common medium and coarse roots; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; clear wavy boundary.

Bt2—21 to 35 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; few fragments of ironstone; common fine flakes of mica; strongly acid; gradual wavy boundary.

Bt3—35 to 43 inches; red (2.5YR 4/6) sandy clay; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; many fine flakes of mica; very strongly acid; gradual wavy boundary.

C—43 to 65 inches; red (2.5YR 5/6) sandy clay loam; massive; friable; common thin strata of sandy loam; many fine flakes of mica; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum ranges from 24 to 50 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4. Texture is sandy loam.

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 brown, yellow, and red. Texture is clay loam, sandy clay, or clay.

The C horizon is commonly stratified. The color is variable, ranging from reddish to grayish. Texture of individual strata ranges from loamy sand to sandy clay loam.

Mantachie Series

The Mantachie series consists of very deep, somewhat poorly drained soils that formed in stratified loamy alluvium. They are on flood plains and are subject to frequent flooding for brief periods in winter and spring in most years. Slopes range from 0 to 1 percent. The soils of the Mantachie series are fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts.

Mantachie soils are commonly associated with Fluvaquents, Iuka, Kinston, and Ochlockonee soils. The very poorly drained Fluvaquents are in depressions and are ponded for long periods. The moderately well drained Iuka soils are in slightly higher positions on flood plains and are coarse-loamy. The poorly drained Kinston soils are in slightly lower positions on flood plains and are grayish throughout the profile. The well drained Ochlockonee soils are on high parts of the natural levee.

Typical pedon of Mantachie silt loam, in an area of Mantachie, Iuka, and Kinston soils, 0 to 1 percent slopes, frequently flooded; about 0.25 mile south of Oakmulgee, 1,200 feet south and 1,900 feet east of the northwest corner of sec. 23, T. 21 N., R. 10 E.

A—0 to 5 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

Bw1—5 to 12 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; many fine and medium roots; common medium faint strong brown (7.5YR 5/6) masses of iron accumulation; common fine faint light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.

Bw2—12 to 18 inches; yellowish brown (10YR 5/6) loam; weak fine subangular blocky structure; friable; many fine and medium roots; common fine black (10YR 2/1) concretions (iron and manganese oxides); many fine and medium distinct gray (10YR 6/1) iron depletions; many fine and medium faint strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

Bg1—18 to 32 inches; gray (10YR 6/1) clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few fine black (10YR 2/1) concretions (iron and manganese oxides); common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg2—32 to 48 inches; gray (10YR 5/1) clay loam; weak coarse subangular blocky structure; friable; common fine and medium roots; common medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg3—48 to 60 inches; gray (10YR 6/1) clay loam; weak coarse subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid.

The thickness of the solum ranges from 30 to more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed.

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

The Bw horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. It has common or many redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and red. Some pedons do not have a dominant matrix color and are multicolored in shades of gray, yellow, brown, and red. Texture is sandy clay loam, loam, or 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 few to many redox accumulations in shades of brown, red, and yellow. Texture is sandy clay loam, loam, or clay loam.

Maubila Series

The Maubila series consists of very deep, moderately well drained soils that formed in stratified clayey and loamy marine sediments (fig. 13). They are on narrow ridgetops and on side slopes in the dissected uplands. Slopes range from 2 to 35 percent. The soils of the Maubila series are fine, mixed, subactive, thermic Aquic Hapludults.

Maubila soils are commonly associated with Luverne, Saffell, and Smithdale soils. Luverne, Saffell, and Smithdale soils are in landscape positions similar to those of the Maubila soils. The well drained Luverne soils do not have a significant content of ironstone in the solum. Saffell soils are loamy-skeletal. Smithdale soils are fine-loamy.

Typical pedon of Maubila flaggy loam, in an area of Maubila flaggy loam, 2 to 8 percent slopes, eroded; about 2 miles northwest of Oakmulgee, 1,500 feet south and 200 feet east of the northwest corner of sec. 10, T. 21 N., R. 10 E.

Ap—0 to 3 inches; dark yellowish brown (10YR 4/4) flaggy loam; weak fine granular structure; very friable; common fine and medium roots; about 25 percent angular fragments of ironstone; very strongly acid; clear smooth boundary.

Bt1—3 to 9 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 10 percent

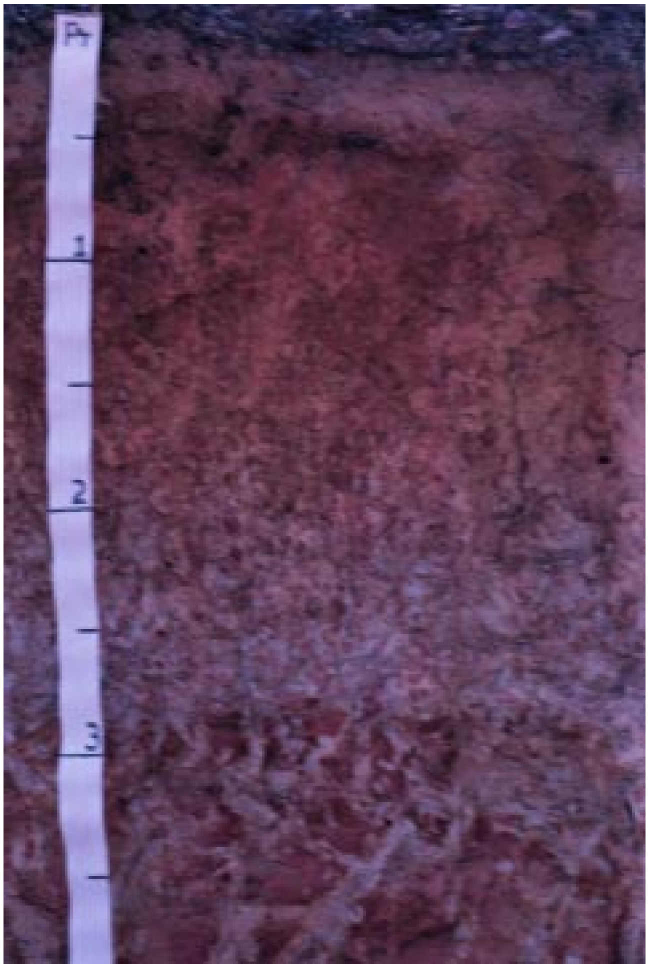

Figure 13.—A profile of Maubila flaggy loam. The subsoil is strong brown clay loam and clay. It has subangular blocky structure, which grades to a massive and coarsely mottled substratum.

angular fragments of ironstone; very strongly acid; clear wavy boundary.

Bt2—9 to 21 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; common faint clay films on faces of peds; about 10 percent angular fragments of ironstone; few fine flakes of mica; common medium prominent red (2.5YR 4/6) and faint yellowish brown (10YR 5/6) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bt3—21 to 34 inches; strong brown (7.5YR 5/6) clay; weak coarse subangular blocky structure parting to strong fine subangular blocky; firm; few fine roots; common distinct clay films on faces of peds; about 10 percent angular fragments of ironstone; few fine flakes of mica; many medium faint yellowish brown (10YR 5/6) and many prominent red (10R 4/8) masses of iron accumulation; common medium prominent light gray (10YR 7/2) iron depletions; very strongly acid; clear wavy boundary.

BC—34 to 52 inches; 30 percent gray (10YR 6/1), 25 percent strong brown (7.5YR 5/6), 25 percent yellowish brown (10YR 5/6), and 20 percent red (10R 4/6) clay loam; weak very coarse subangular blocky structure; friable; few thin strata and pockets of sandy clay; about 10 percent angular fragments of ironstone; many fine flakes of mica; the areas of strong brown, yellowish brown, and red are iron accumulations and the areas of gray are iron depletions; very strongly acid; gradual wavy boundary.

C—52 to 80 inches; 35 percent gray (10YR 6/1), 25 percent strong brown (7.5YR 5/6), 25 percent yellowish brown (10YR 5/6), and 15 percent red (10R 4/6) clay; massive; firm; few thin (0.75 inch) discontinuous strata of ironstone; few thin strata and pockets of sandy clay and clay loam; many fine flakes of mica; the areas of gray are iron depletions and the areas of strong brown, yellowish brown, and red are iron accumulations; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid throughout the profile, except in areas where the surface layer has been limed. The content of ironstone fragments, on the surface and throughout the A horizon, ranges from 5 to 35 percent, by volume. These fragments range in size from channers to flags. The content of coarse fragments in the Bt, BC, and C horizons is less than 15 percent, by volume.

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 loam or sandy loam in the fine-earth fraction.

The upper part of the Bt horizon commonly has hue of 7.5YR or 10YR but can range to 2.5YR. It has value of 4 to 6 and chroma of 6 or 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of red, yellow, and brown. Texture is commonly clay loam or clay, but some pedons may have a thin subhorizon of sandy clay loam. The lower part has colors similar to those of the upper part, or it does not have a dominant matrix color and is multicolored in shades of gray, yellow, red, and brown. It has common or many redox depletions in shades of gray and redox accumulations in shades of yellow, red, and brown. Texture is clay loam, clay, or silty clay.

The BC or CB horizon, if it occurs, generally does not have a dominant matrix color and is multicolored in shades of gray, yellow, red, and brown. Some pedons have few or common thin strata or pockets of finer or coarser textured materials. Texture is clay loam, silty clay, or clay.

The C horizon has colors similar to those of the BC or CB horizon. It is firm or very firm and is massive. Texture is clay loam, silty clay, or clay. Most pedons have one or more thin, discontinuous strata of ironstone and thin strata or pockets of finer or coarser textured materials.

Minter Series

The Minter series consists of very deep, poorly drained soils that formed in clayey alluvium. They are in depressions on flood plains and low stream terraces, and they are subject to frequent flooding and ponding for long periods in winter and spring in most years. Slopes range from 0 to 1 percent. The soils of the Minter series are fine, mixed, semiactive, thermic Typic Endoaqualfs.

Minter soils are commonly associated with Cahaba, Eunola, and Riverview soils. The well drained Cahaba and moderately well drained Eunola soils are in slightly higher positions on stream terraces. They are fine-loamy. The well drained Riverview soils are in slightly higher positions on flood plains and are fine-loamy.

Typical pedon of Minter silty clay loam, ponded, about 3.5 miles northwest of Suttle, 1,300 feet north and 600 feet west of the southeast corner of sec. 2, T. 18 N, R. 8 E.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine granular structure; many fine and medium roots; strongly acid; clear smooth boundary.

Btg1—4 to 20 inches; gray (10YR 5/1) clay loam; moderate fine subangular blocky structure; firm; common medium and coarse roots; common distinct clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg2—20 to 48 inches; gray (10YR 5/1) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg3—48 to 60 inches; gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine flakes of mica; common medium prominent yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and yellowish red (5YR 4/6) masses of iron accumulation; strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or less.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or less or 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 loam, silty clay loam, silty clay, or clay.

Myatt Series

The Myatt series consists of very deep, poorly drained soils that formed in stratified loamy alluvium. They are on low stream terraces and are subject to rare flooding. Slopes range from 0 to 2 percent. The soils of the Myatt series are fine-loamy, siliceous, semiactive, thermic Typic Endoaquults.

Myatt soils are commonly associated with Cahaba, Eunola, and Jedburg soils. The well drained Cahaba, somewhat poorly drained Jedburg, and moderately well drained Eunola soils are in slightly higher, more convex positions on stream terraces than the Myatt soils.

Typical pedon of Myatt fine sandy loam, 0 to 1 percent slopes, rarely flooded, about 3.5 miles north of Suttle, 1,150 feet south and 980 feet west of the northeast corner of sec. 32, T. 19 N., R. 9 E.

A—0 to 6 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Eg—6 to 11 inches; light brownish gray (10YR 6/2) fine sandy loam; weak coarse subangular blocky structure; very friable; common fine medium and coarse roots; few streaks of very dark grayish brown (10YR 3/2) fine sandy loam in root channels; common medium distinct yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg1—11 to 23 inches; light brownish gray (10YR 6/2) fine sandy loam; weak medium subangular blocky structure; friable; many fine roots; few faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation and few medium prominent red (2.5YR 4/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg2—23 to 46 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; common faint clay films on faces of peds; common fine and medium prominent brownish yellow (10YR 6/6), strong brown (7.5YR 5/6), and red (2.5YR 4/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Cg—46 to 65 inches; 45 percent gray (10YR 6/1), 20 percent brownish yellow (10YR 6/6), 20 percent strong brown (7.5YR 5/6), and 15 percent red (2.5YR 4/8) sandy clay loam; massive; friable; few thin strata of sandy loam and sandy clay; the areas of gray are iron depletions and the areas of brownish yellow, strong brown, and red are iron accumulations; extremely acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid throughout the profile, except in areas where the surface layer has been limed.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The Eg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is fine sandy loam or sandy loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 2 or less. It has few to many redox accumulations in shades of brown, yellow, or red. Texture is fine sandy loam, loam, or sandy clay loam.

The Cg horizon commonly does not have a dominant matrix color and is multicolored in shades of gray, yellow, brown, and red. Texture is commonly sandy clay loam or sandy loam.

Some pedons are stratified with loamy, sandy, clayey, and gravelly material.

Ochlockonee Series

The Ochlockonee series consists of very deep, well drained soils that formed in stratified loamy and sandy alluvium. They are on high parts of natural levees on flood plains. Slopes range from 0 to 2 percent. The soils of the Ochlockonee series are coarse-loamy, silicious, active, acid, thermic Typic Udifluvents.

Ochlockonee soils are commonly associated with Iuka, Kinston, Mantachie, and Riverview soils. The moderately well drained Iuka soils are in slightly lower, less convex positions on the flood plain. The poorly drained Kinston and somewhat poorly drained Mantachie soils are in lower positions on the flood plain. Riverview soils are in slightly higher positions on the flood plain and are fine-loamy.

Typical pedon of Ochlockonee sandy loam, in an area of Ochlockonee-Riverview complex, gently undulating, frequently flooded; about 3.5 miles northwest of Suttle, 1,000 feet north and 1,200 west of the southeast corner of sec. 2, T. 18 N., R. 8 E.

A—0 to 4 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common fine and medium roots; common fine flakes of mica; moderately acid; clear smooth boundary.

C—4 to 32 inches; thinly stratified dark yellowish brown (10YR 4/4) silt loam and light yellowish brown (10YR 6/4) sandy loam and loamy sand; massive; very friable; common fine roots; common fine flakes of mica; moderately acid; gradual wavy boundary.

Ab—32 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; very friable; common fine flakes of mica; strongly acid; clear wavy boundary.

C´—45 to 60 inches; stratified yellowish brown (10YR 5/4) loamy sand and sandy loam; massive; very friable; common fine flakes of mica; very strongly acid.

Reaction ranges from very strongly acid to slightly acid in the A or Ap horizon and is very strongly acid or strongly acid in the C horizon. Buried horizons, which are present in most pedons below a depth of 25 inches, have colors and textures similar to those of the A horizon.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4.

The C horizon is commonly stratified. It has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 6. Texture of individual strata is loamy sand, loamy fine sand, sandy loam, fine sandy loam, or silt loam.

Ocilla Series

The Ocilla series consists of very deep, somewhat poorly drained drained soils that formed in sandy and loamy alluvium. They are on stream terraces. Slopes range from 1 to 3 percent. The soils of the Ocilla series are loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults.

Ocilla soils are commonly associated with Jedburg and Myatt soils. The somewhat poorly drained Jedburg and poorly drained Myatt soils are in slightly lower positions and do not have a thick sandy epipedon.

Typical pedon of Ocilla loamy fine sand, in an area of Ocilla-Jedburg complex, 1 to 3 percent slopes; about 1.7 miles northeast of Vilula, 1,100 feet north and 1,950 feet east of the southwest corner of sec. 34, T. 19 N., R. 8 E.

A—0 to 6 inches; brown (10YR 5/3) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; common fine fragments of charcoal; strongly acid; clear smooth boundary.

E1—6 to 14 inches; light yellowish brown (2.5Y 6/4) loamy fine sand; single grain; loose; common fine and medium roots; few streaks of uncoated sand; strongly acid; clear wavy boundary.

E2—14 to 26 inches; pale yellow (2.5Y 7/4) loamy fine sand; single grain; loose; common fine and medium roots; few streaks of uncoated sand; common medium faint pale brown (10YR 6/3) iron depletions; strongly acid; abrupt smooth boundary.

Bt1—26 to 37 inches; light olive brown (2.5Y 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 1 percent nodular plinthite; common medium distinct gray (10YR 6/1) iron depletions; common medium prominent strong brown (7.5YR 5/6) and yellowish red (5YR 4/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt2—37 to 58 inches; 30 percent gray (10YR 6/1), 25 percent yellowish brown (10YR 5/6), 25 percent strong brown (7.5YR 5/6), and 20 percent red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; about 1 percent nodular plinthite; the areas of gray are iron depletions and the areas of yellowish brown, strong brown, and red are iron accumulations; very strongly acid; gradual wavy boundary.

Bt3—58 to 65 inches; 40 percent gray (10YR 6/1), 25 percent yellowish brown (10YR 5/6), 25 percent strong brown (7.5YR 5/6), and 10 percent yellowish red (5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; the areas of gray are iron depletions and the areas of yellowish brown, strong brown, and yellowish red are iron accumulations; 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 in areas where lime has been applied.

The Ap or A 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 to 7, and chroma of 3 or 4. Texture is loamy sand or loamy fine sand.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and red. The lower part of the horizon commonly does not have a dominant matrix color and is multicolored in shades of brown, yellow, red, and gray. Texture is sandy loam or sandy clay loam. The content of nodular plinthite ranges from 0 to 3 percent.

Okolona Series

The Okolona series consists of very deep, moderately well drained soils that formed in alkaline, clayey residuum derived from soft limestone (chalk) (fig. 14). They are on uplands of the Blackland Prairie. Slopes range from 0 to 3 percent. The soils of the Okolona series are fine, smectitic, thermic Oxyaquic Hapluderts.

Okolona soils are commonly associated with Sucarnoochee, Sumter, and Vaiden soils. The somewhat poorly drained Sucarnoochee soils are on flood plains. The somewhat poorly drained Vaiden soils are in slightly lower landscape positions than the Okolona soils. They are acid in the upper part of the subsoil. Sumter soils are in higher positions or on lower side slopes. They are moderately deep over bedrock.

Typical pedon of Okolona silty clay loam, 0 to 3 percent slopes, about 2 miles southeast of Vaiden, 1,125 feet west and 375 feet south of the northeast corner of sec. 34, T. 18 N., R. 7 E.

Ap—0 to 6 inches; dark olive gray (5Y 3/2) silty clay loam; moderate medium subangular blocky structure; firm; many fine and medium roots; few fine and medium concretions of calcium carbonate; slightly effervescent; slightly alkaline; abrupt smooth boundary.

A1—6 to 22 inches; black (5Y 2.5/2) silty clay; strong medium subangular blocky structure; firm; common fine and medium roots; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine and medium concretions of calcium carbonate; common medium faint light olive brown (2.5Y 5/4) masses of iron accumulation on faces of peds; slightly effervescent; slightly alkaline; clear wavy boundary.

A2—22 to 27 inches; black (5Y 2.5/2) silty clay;

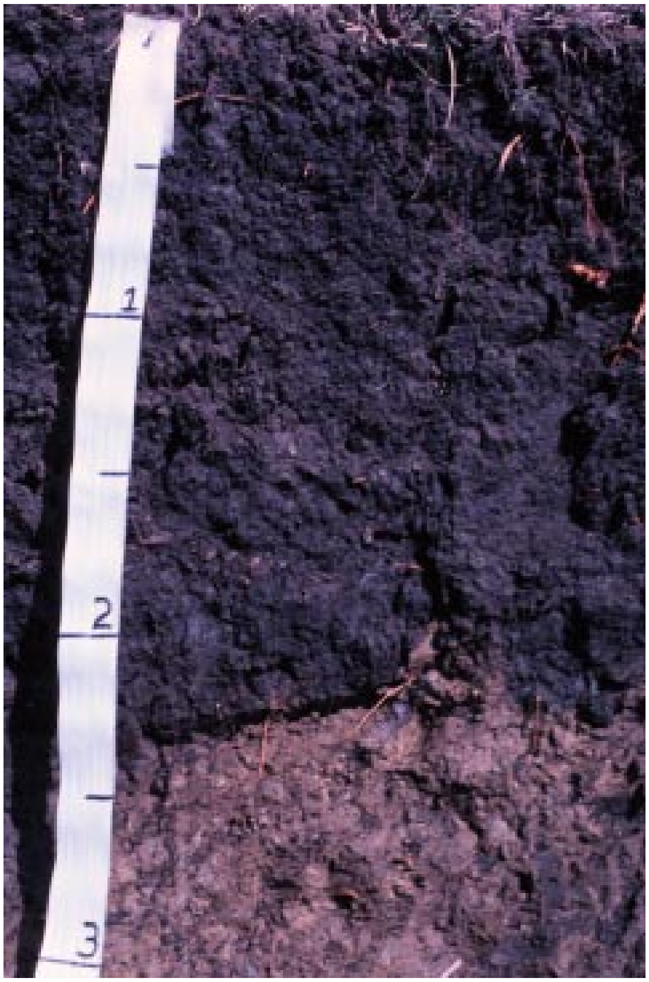

Figure 14.—A profile of Okolona silty clay loam. The dark surface layer overlies a calcareous, olive brown clay subsoil. A large slickenside is exposed at a depth of about 36 inches.

moderate coarse angular blocky structure that parts to strong medium angular blocky; very firm; few fine roots; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine and medium concretions of calcium carbonate; slightly effervescent; slightly alkaline; clear wavy boundary.

Bkss1—27 to 33 inches; olive (5Y 4/3) clay; moderate very coarse angular blocky structure that parts to strong medium angular blocky; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine and medium concretions of calcium carbonate; common fine soft masses of calcium carbonate; common medium faint light olive brown (2.5Y 5/4) masses of iron accumulation on faces of peds; few fine faint gray (2.5Y 5/1) iron depletions on faces of peds; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss2—33 to 60 inches; olive brown (2.5Y 4/4) clay; moderate very coarse angular blocky structure that parts to strong medium angular blocky; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine and medium concretions of calcium carbonate; common fine and medium soft masses of calcium carbonate; common medium distinct brownish yellow (10YR 6/6) masses of iron accumulation; common fine faint gray (10YR 5/1) iron depletions on faces of peds; strongly effervescent; moderately alkaline.

The thickness of the solum ranges from 40 to more than 60 inches. Reaction is slightly alkaline or moderately alkaline throughout the profile. These soils have few or common nodules of iron and manganese oxide throughout the profile.

The Ap and A horizons have hue of 10YR to 5Y, value of 2 or 3, and chroma of 2 or 3. They have few or common concretions of calcium carbonate. Some pedons have few or common redox depletions and accumulations.

The Bkss horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. It has few or common redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and olive. It has few to many soft masses and concretions of calcium carbonate. Texture is silty clay or clay.

Oktibbeha Series

The Oktibbeha series consists of very deep, moderately well drained soils that formed in acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk). They are on ridgetops and side slopes in the uplands of the Blackland Prairie. Slopes range from 1 to 8 percent. The soils of the Oktibbeha series are very-fine, smectitic, thermic Chromic Dystruderts.

Oktibbeha soils are commonly associated with Demopolis, Kipling, Sumter, Vaiden, and Watsonia soils. Demopolis and Sumter soils are in slightly higher landscape positions. Demopolis soils are shallow, and Sumter soils are moderately deep over soft limestone (chalk). The somewhat poorly drained Kipling and Vaiden soils are in slightly lower positions than the Oktibbeha soils. Kipling soils are fine-textured. Vaiden soils have brownish colors in the upper part of the subsoil.

Typical pedon of Oktibbeha clay, in an area of Sumter-Oktibbeha complex, 3 to 8 percent slopes, eroded; about 6.5 miles south of Uniontown, 850 feet north and 200 feet east of the southwest corner of sec. 10, T. 16 N., R. 6 E.

Ap—0 to 3 inches; dark yellowish brown (10YR 4/4) clay; weak medium subangular blocky structure; very firm; many fine and medium roots; moderately acid; abrupt wavy boundary.

Bt1—3 to 11 inches; yellowish red (5YR 5/6) clay; weak coarse prismatic structure that parts to strong fine and medium subangular blocky; very firm; few fine and medium roots; few faint clay films on faces of peds; common medium distinct red (2.5YR 4/6) and yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Bt2—11 to 15 inches; red (2.5YR 4/6) clay; weak coarse prismatic structure that parts to moderate medium angular blocky; very firm; few fine roots flattened on ped surfaces; few faint clay films on faces of peds; common fine and medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss1—15 to 26 inches; yellowish brown (10YR 5/6) clay; moderate coarse angular blocky that parts to strong medium angular blocky structure; very firm; few fine roots flattened on ped surfaces; common large intersecting slickensides that have distinct polished and grooved surfaces; common medium distinct red (2.5YR 4/6) masses of iron accumulation; common 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—26 to 35 inches; light olive brown (2.5Y 5/6) clay; moderate coarse angular blocky that parts to strong medium angular blocky structure; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine soft black (10YR 2/1) masses (iron and manganese oxides); common medium distinct light olive gray (5Y 6/2) iron depletions on faces of peds; common medium faint olive yellow (2.5Y 6/6) and few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; moderately acid; gradual wavy boundary.

Bkss—35 to 60 inches; light olive brown (2.5Y 5/6) clay; weak very coarse angular blocky structure that parts to strong medium angular blocky; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine soft masses and concretions of calcium carbonate; common fine black (10YR 2/1) nodules (iron and manganese oxides); common medium faint olive yellow (2.5Y 6/6) masses of iron accumulation; common fine and medium distinct light brownish gray (2.5Y 6/2) iron depletions on faces of peds and within the matrix; slightly effervescent; slightly alkaline.

The depth to horizons that have secondary carbonates ranges from 30 to 60 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 applied. 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 or 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of brown, yellow, and red. Reaction ranges from extremely acid to strongly acid. Texture is clay.

The upper part of the Btss horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 or 8; or it has no dominant matrix color and is multicolored in shades of yellow, brown, red, and gray. Reaction ranges from extremely acid to strongly acid. Texture is clay. The lower part of the horizon has hue of 10YR or 2.5Y, value of 4 to 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. They generally increase with increasing depth. Reaction ranges from strongly 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. Some pedons do not have a dominant matrix color and are multicolored in shades of olive, brown, and gray. Iron depletions in shades of gray and iron accumulations in shades of brown range from few to many and are most common on the surface of peds or slickensides. 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. Some pedons have few to common soft masses or nodules of iron and manganese oxide.

Riverview Series

The Riverview series consists of very deep, well drained soils. They formed in stratified loamy alluvium on high parts of flood plains and are subject to frequent flooding for brief periods in late winter and early spring in most years. Slopes range from 0 to 3 percent. The soils of the Riverview series are fine-loamy, mixed, active, thermic Fluventic Dystrochrepts.

Riverview soils are commonly associated with Annemaine, Cahaba, Minter, and Ochlockonee soils. Annemaine and Cahaba soils are on adjacent stream terraces at slightly higher elevations. Annemaine soils have a clayey argillic horizon. Cahaba soils have a fine-loamy argillic horizon. The poorly drained Minter soils are in swales and other shallow depressions. Ochlockonee soils are in slightly lower positions on the flood plain and are coarse-loamy.

Typical pedon of Riverview silt loam, in an area of Ochlockonee-Riverview complex, gently undulating, frequently flooded; about 1.25 miles west of Radford, 2,300 feet north and 700 feet east of the southwest corner of sec. 30, T. 19 N., R. 9 E.

A1—0 to 2 inches; dark brown (10YR 3/4) silt loam; weak medium granular structure; friable; many fine and medium roots; many fine flakes of mica; moderately acid; clear smooth boundary.

A2—2 to 10 inches; dark yellowish brown (10YR 4/4) loam; moderate medium granular structure; friable; common fine and medium roots; many fine flakes of mica; strongly acid; clear wavy boundary.

Bw1—10 to 16 inches; yellowish brown (10YR 3/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; many fine flakes of mica; strongly acid; clear wavy boundary.

Bw2—16 to 35 inches; dark yellowish brown (10YR 4/6) loam; weak medium subangular structure; friable; few fine roots; common flakes of mica; very strongly acid; gradual wavy boundary.

C1—35 to 48 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; faint bedding planes; very friable; common fine and medium roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

C2—48 to 60 inches; brownish yellow (10YR 6/6) thinly stratified loamy sand and sand; single grain; loose; many fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 24 to 60 inches. Reaction ranges from very strongly acid to slightly acid in the A horizon and from very strongly acid to moderately acid in the Bw and C horizons.

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

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 of 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.

Saffell Series

The Saffell series consists of very deep, well drained soils that formed in stratified loamy, gravelly, and sandy sediments (fig. 15). They are on narrow ridgetops and on side slopes in the uplands. Slopes range from 2 to 15 percent. The soils of the Saffell series are loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults.

Saffell soils are commonly associated with Luverne, Maubila, and Smithdale soils. These associated soils are in landscape positions similar to those of the Saffell soils. Luverne and Maubila soils have a clayey argillic horizon. Smithdale soils do not have a significant content of gravel within the solum.

Typical pedon of Saffell gravelly sandy loam, 5 to 15 percent slopes, about 2.3 miles southwest of Oakmulgee, 2,600 feet north and 300 feet east of the southwest corner of sec. 27, T. 21 N., R. 10 E.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 20 percent fine gravel; strongly acid; clear smooth boundary.

E—5 to 10 inches; yellowish brown (10YR 5/4) gravelly sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 25 percent fine gravel; strongly acid; clear wavy boundary.

Bt1—10 to 30 inches; yellowish red (5YR 4/6) very gravelly sandy clay loam; moderate fine subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; about 50 percent fine and medium gravel; very strongly acid; gradual wavy boundary.

Bt2—30 to 42 inches; yellowish red (5YR 5/8) very gravelly sandy loam; weak fine subangular blocky structure; friable; few fine roots; few faint clay films

Figure 15.—A profile of Saffell gravelly sandy loam. The subsoil is yellowish red very gravelly sandy clay loam and very gravelly sandy loam.

on faces of peds; about 40 percent fine and medium gravel; very strongly acid; gradual wavy boundary.

C—42 to 60 inches; yellowish red (5YR 5/8) very gravelly sandy loam; massive; friable; about 40 percent fine and medium gravel; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum ranges from 35 to 60 inches. Reaction is very strongly acid or strongly acid throughout the profile.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The content of fine and medium gravel ranges from 15 to 35 percent, by volume.

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. Texture is gravelly or very gravelly fine sandy loam, sandy loam, or loam. The content of fine and medium gravel ranges from 15 to 60 percent, by volume.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is very gravelly or extremely gravelly sandy clay loam, sandy loam, or clay loam. The content of fine and medium gravel ranges from 35 to 75 percent, by volume.

The C horizon has colors similar to those of the Bt horizon. Some pedons have few or common redox accumulations in shades of brown, yellow, and red. Texture is gravelly, very gravelly, or extremely gravelly loamy sand or sandy loam. The content of fine and medium gravel ranges from 20 to 80 percent, by volume.

Smithdale Series

The Smithdale series consists of very deep, well drained soils that formed in loamy and sandy sediments. They are on narrow ridges and on side slopes of the uplands. Slopes range from 2 to 35 percent. The soils of the Smithdale series are fine-loamy, siliceous, subactive, thermic Typic Hapludults.

Smithdale soils are commonly associated with Bama, Greenville, Luverne, Maubila, and Saffell soils. Bama and Greenville soils are on broad ridgetops at slightly higher elevations. The argillic horizon of Bama soils does not have a reduction in clay content of 20 percent or more within a depth of 60 inches. Greenville soils have a dark red, clayey argillic horizon. Luverne, Maubila, and Saffell soils are in landscape positions similar to those of the Smithdale soil. Luverne and Maubila soils have a clayey argillic horizon. Saffell soils are loamy-skeletal.

Typical pedon of Smithdale sandy loam, in an area of Luverne-Smithdale complex, 5 to 15 percent slopes; about 2 miles northeast of Radford, 1,000 feet east and 1,600 feet south of the northwest corner of sec. 27, T. 19 N., R. 9 E.

A—0 to 4 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

E—4 to 13 inches; light yellowish brown (10YR 6/4) sandy loam; weak coarse subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bt1—13 to 30 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; very friable; common very fine and few fine roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—30 to 38 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; very friable; few very fine roots; common faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—38 to 60 inches; yellowish red (5YR 4/8) sandy loam; weak medium subangular blocky structure; very friable; few 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 in areas where the surface layer has been limed.

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 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 sandy clay loam in the upper part and sandy loam in the lower part.

Subran Series

The Subran series consists of very deep, moderately well drained soils that formed in loamy and clayey marine sediments (fig. 16). They are on broad ridgetops and side slopes in the uplands. Slopes range from 0 to 5 percent. The soils of the Subran series are fine, mixed, semiactive, thermic Aquic Paleudults.

Subran soils are commonly associated with Bama, Smithdale, and Vaiden soils. Bama soils are in slightly higher positions and are fine-loamy. Vaiden soils are in slightly lower positions and are very-fine textured. Smithdale soils are on lower slopes and are fine-loamy.

Typical pedon of Subran fine sandy loam, 0 to 2 percent slopes, about 1.7 miles west of Zimmerman, 500 feet south and 1,000 feet west of the northeast corner of sec. 19, T. 19 N., R. 7 E.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine brown and black nodules (iron and manganese oxides); slightly acid; clear smooth boundary.

Bt—6 to 13 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; few fine black nodules (iron and manganese oxides); slightly acid; clear smooth boundary.

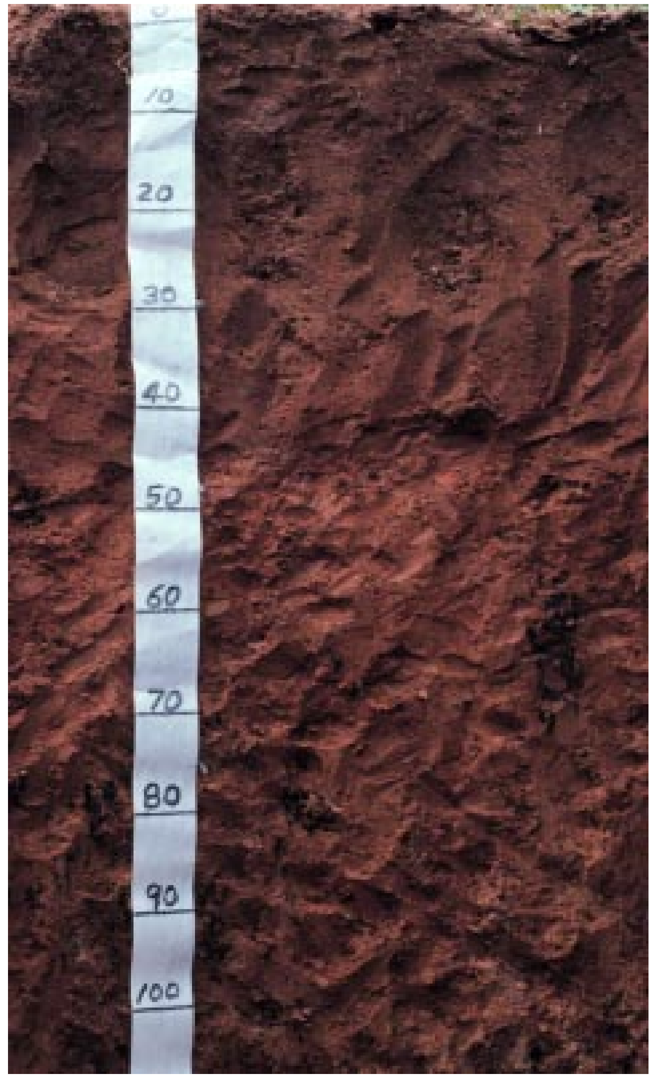

Figure 16.—A profile of Subran fine sandy loam. The subsoil is yellowish brown clay loam in the upper part and yellowish brown clay in the lower part. Common or many rounded black nodules of iron and manganese oxides are in parts of the argillic horizon.

Btc1—13 to 22 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; many medium and coarse black nodules (iron and manganese oxides); common black weblike stains on faces of peds; strongly acid; clear wavy boundary.

Btc2—22 to 33 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; many fine and medium and common coarse black nodules (iron and manganese oxides); common black weblike stains on faces of some peds; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; few medium distinct light gray (10YR 7/2) iron depletions; strongly acid; clear wavy boundary.

Btc3—33 to 45 inches; yellowish brown (10YR 5/8) clay; moderate coarse subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common fine and medium black nodules (iron and manganese oxides); common black weblike stains on faces of some peds; common medium distinct light gray (2.5Y 7/2) iron depletions; strongly acid; clear wavy boundary.

B´t—45 to 65 inches; 40 percent yellowish brown (10YR 5/6), 30 percent light gray (5Y 7/2), and 30 percent red (10R 4/6) clay; moderate coarse subangular blocky structure parting to moderate medium angular blocky; firm; common distinct clay films on faces of peds; few fine black nodules (iron and manganese oxides); the areas of yellowish brown and red are iron accumulations and the areas of light gray are iron depletions; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction of the Ap horizon ranges from very strongly acid to slightly acid. Reaction of the Bt, Btc, and B´t horizons is very strongly acid or strongly acid. The content of black nodules or stains, which are presumed to be iron and manganese oxides) is few in the A, Bt, and B´t horizons and is common or many in the Btc horizons.

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

Some pedons have a thin E or BE horizon that has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4. Texture is fine sandy loam, sandy loam, or loam.

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 has colors similar to those of the upper part, or it has no dominant matrix color and is multicolored in shades of yellow, brown, gray, and red. Texture is clay loam, clay, or silty clay.

Sucarnoochee Series

The Sucarnoochee series consists of very deep, somewhat poorly drained soils that formed in alkaline, clayey alluvium. They are on flood plains of the Blackland Prairie and are subject to frequent flooding for brief periods in late winter and early spring in most years. Slopes range from 0 to 1 percent. The soils of the Sucarnoochee series are fine, smectitic, thermic Chromic Epiaquerts.

Sucarnoochee soils are commonly associated with Demopolis, Okolona, Sumter, and Vaiden soils. All of these soils are on adjacent uplands and are not subject to flooding. Demopolis soils are shallow over bedrock. Okolona soils are moderately well drained. Sumter soils are moderately deep over bedrock. Vaiden soils are very-fine and are acid in the upper part of the solum.

Typical pedon of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded, about 0.25 mile southwest of Scott Station, 1,250 feet south and 2,400 feet west of the northeast corner of sec. 10, T. 18 N., R. 6 E.

Ap—0 to 5 inches; dark grayish brown (2.5Y 4/2) clay; moderate fine subangular blocky structure; firm; common fine and medium roots; neutral; clear smooth boundary.

AB—5 to 16 inches; very dark gray (5Y 3/1) clay; strong medium subangular blocky structure parting to strong fine subangular blocky; very firm; common fine and very fine roots; few fine distinct olive (5Y 5/4) masses of iron accumulation; neutral; clear wavy boundary.

Bss1—16 to 32 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 flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine black nodules (iron and manganese oxides); common medium distinct light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual wavy boundary.

Bss2—32 to 44 inches; dark grayish brown (2.5Y 4/2) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; common fine and very fine roots flattened on ped faces; many large intersecting slickensides that have distinct polished and grooved surfaces; few fine black nodules (iron and manganese oxides); common medium distinct dark gray (5Y 4/1) iron depletions; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral; gradual wavy boundary.

Bss3—44 to 54 inches; dark grayish brown (2.5Y 4/2) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; few fine roots flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine black nodules (iron and manganese oxides); common medium distinct light olive brown (2.5Y 5/4) and few fine distinct yellowish brown (10Y 5/6) masses of iron accumulation; few fine distinct gray (5Y 5/1) iron depletions; neutral; gradual wavy boundary.

Bkss—54 to 60 inches; 35 percent dark grayish brown (2.5Y 4/2), 35 percent light olive brown (2.5Y 5/4), and 30 percent yellowish brown (10YR 5/6) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; common fine soft masses and concretions of calcium carbonate; few fine black nodules (iron and manganese oxides); the areas of dark grayish brown are iron depletions and the areas of light olive brown and yellowish brown are iron accumulations; moderately effervescent; moderately 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 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.

Suffolk Series

The Suffolk series consists of very deep, well drained soils that formed in loamy sediments. They are on terraces and toe slopes in the uplands. Slopes range from 1 to 5 percent. The soils of the Suffolk series are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Suffolk soils are commonly associated with Cahaba, Luverne, and Smithdale soils. Cahaba soils are on lower terraces and have a reddish subsoil. Luverne and Smithdale soils are on side slopes at higher elevations. Luverne soils have a clayey argillic horizon. Smithdale soils have reddish colors in the subsoil.

Typical pedon of Suffolk fine sandy loam, 1 to 5 percent slopes, about 3.5 miles southwest of Oakmulgee, 1,900 feet south and 700 feet east of the northwest corner of sec. 33, T. 21 N., R. 10 E.

Ap—0 to 5 inches; dark brown (10YR 4/3) fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; about 2 percent fine gravel; strongly acid; clear smooth boundary.

E—5 to 9 inches; yellowish brown (10YR 5/4) sandy loam; weak coarse subangular blocky structure; very friable; common fine and medium roots; about 2 percent fine gravel; strongly acid; clear wavy boundary.

BE—9 to 16 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; many fine and medium roots; about 2 percent fine gravel; strongly acid; clear wavy boundary.

Bt1—16 to 22 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 2 percent fine gravel; few fine black (10YR 2/1) nodules (iron and manganese oxides); few fine faint strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/4) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt2—22 to 28 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; about 10 percent fine gravel; common medium faint strong brown (7.5YR 5/6) and few fine prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt3—28 to 35 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; about 3 percent fine gravel; common medium distinct yellowish brown (10YR 5/6) and prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bt4—35 to 53 inches; strong brown (7.5YR 5/6) sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; few faint clay films on faces of peds; about 2 percent fine gravel; common medium distinct pale brown (10YR 6/3) and yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C—53 to 65 inches; yellowish brown (10YR 5/6) sandy loam; massive; friable; few thin strata of sandy clay loam; about 3 percent fine gravel; common medium distinct strong brown (7.5YR 5/6) and prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid.

The thickness of the solum ranges from 35 to 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except in areas where the surface has been limed.

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 has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 6. Texture is fine sandy loam or sandy loam.

The BE horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. Texture is sandy loam or fine sandy loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Some pedons have few or common redox accumulations in shades of brown, yellow, and red. Texture is loam, sandy clay loam, or clay loam.

The C horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 8. Some pedons have few or common redox depletions in shades of gray and redox accumulations in shades of yellow, brown, and red. Texture is sand, fine sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

Sumter Series

The Sumter series consists of moderately deep, well drained soils that formed in alkaline, loamy and clayey residuum derived from soft limestone (chalk). They are on ridgetops and side slopes in the uplands of the Blackland Prairie. Slopes range from 1 to 8 percent. The soils of the Sumter series are fine-silty, carbonatic, thermic Rendollic Eutrochrepts.

Sumter soils are commonly associated with Demopolis, Kipling, Okolona, Oktibbeha, Sucarnoochee, and Watsonia soils. Demopolis and Watsonia soils are in landscape positions similar to those of the Demopolis soils. They are shallow over bedrock. The somewhat poorly drained Kipling and moderately well drained Oktibbeha soils are in slightly lower positions and are acid in the upper part of the solum. Okolona soils are in slightly lower positions and have a thick, dark colored epipedon and vertic properties. The somewhat poorly drained Sucarnoochee soils are on adjacent flood plains.

Typical pedon of Sumter silty clay loam, 1 to 3 percent slopes, 3 miles southeast of Hamburg, 2,600 feet south and 2,450 feet east of the northwest corner of sec. 26, T. 18 N., R. 8 E.

Ap—0 to 7 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium granular structure; friable; many fine and medium roots; common fine soft masses of calcium carbonate; slightly effervescent; neutral; clear smooth boundary.

BA—7 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine soft masses, and few fine concretions of calcium carbonate; strongly effervescent; moderately alkaline; clear wavy boundary.

Bk—11 to 30 inches; pale yellow (5Y 7/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many soft masses and concretions of calcium carbonate; few fine fragments of chalk; common medium distinct olive yellow (2.5Y 6/6) masses of iron accumulation; moderately alkaline; clear wavy boundary.

Cr—30 to 80 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 2.5Y or 5Y, value of 3 to 5, and chroma of 1 or 2. Texture is silty clay loam or silty clay.

The BA horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silty clay loam or silty clay.

The Bk horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 4 to 6. Texture is silty clay loam, silty clay, or clay. It has common or many concretions and soft masses of calcium carbonate. Fragments of soft limestone (chalk) are in most pedons. The content of these fragments ranges from 2 to 15 percent, by volume, and generally increases with increasing depth.

The Cr horizon is level-bedded, soft limestone (chalk). It restricts plant roots, but it can be cut with hand tools and is rippable by mechanized equipment.

Vaiden Series

The Vaiden series consists of very deep, somewhat poorly drained soils that formed in acid, clayey sediments and the underlying alkaline clay or soft limestone (chalk). They are on broad ridgetops and gentle side slopes in the uplands of the Blackland Prairie. Slopes range from 0 to 3 percent. The soils of the Vaiden series are very-fine, smectitic, thermic Aquic Dystruderts.

Vaiden soils are commonly associated with Eutaw, Okolona, Oktibbeha, and Sucarnoochee soils. The poorly drained Eutaw soils are in slightly lower positions that are flat or have concave slopes. The moderately well drained Okolona soils are in slightly higher positions than the Vaiden soils. They have a thick, dark colored epipedon and are alkaline throughout the profile. The moderately well drained Oktibbeha soils are in slightly higher landscape positions. They have reddish colors in the upper part of the subsoil. The somewhat poorly drained Sucarnoochee soils are on adjacent flood plains and are alkaline throughout the profile.

Typical pedon of Vaiden clay, 0 to 1 percent slopes, about 2 miles west of Vaiden, 1,250 feet south and 2,400 feet west of the northeast corner of sec. 33, T. 18 N., R. 7 E.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) clay; weak coarse subangular blocky structure; very firm; common fine and medium roots; slightly acid; clear smooth boundary.

Btss1—6 to 12 inches; yellowish brown (10YR 5/6) clay; moderate coarse subangular blocky structure parting to strong fine angular blocky; very firm; common fine roots flattened on ped faces; few large intersecting slickensides that have distinct polished and grooved surfaces; common medium distinct strong brown (7.5YR 5/6) and prominent yellowish red (5YR 5/8) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Btss2—12 to 23 inches; 25 percent yellowish brown (10YR 5/6), 25 percent strong brown (7.5YR 5/6), 25 percent yellowish red (5YR 4/6), and 25 percent light brownish gray (10YR 6/2) clay; moderate coarse angular blocky structure parting to strong medium angular blocky; very firm; few fine roots flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; the areas of yellowish brown, strong brown, and yellowish red are iron accumulations and areas of light brownish gray are iron depletions; very strongly acid; gradual wavy boundary.

Bss1—23 to 40 inches; 35 percent gray (10YR 6/1), 25 percent yellowish brown (10YR 5/8), 25 percent strong brown (7.5YR 5/6), and 15 percent yellowish red (5YR 4/6) clay; moderate very coarse angular blocky structure parting to strong medium angular blocky; very firm; common large intersecting slickensides that have prominent polished and grooved surfaces; the areas of yellowish brown, strong brown, and yellowish red are iron accumulations and areas of gray are iron depletions; very strongly acid; clear wavy boundary.

Bss2—40 to 58 inches; 30 percent olive (5Y 5/4), 30 percent gray (5Y 6/1), 20 percent light olive brown (2.5Y 5/4), and 20 percent yellowish brown (10YR 5/6) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; many large intersecting slickensides that have prominent polished and grooved surfaces; the areas of olive, light olive brown, and yellowish brown are iron accumulations and the areas of gray are iron depletions; neutral; gradual wavy boundary.

Bkss—58 to 72 inches; light olive brown (2.5Y 5/6) clay; weak very coarse angular blocky structure parting to strong medium angular blocky; very firm; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine black nodules (iron and manganese oxides); common medium soft masses and concretions of calcium carbonate; common medium distinct olive (5Y 5/4) and yellowish brown (10YR 5/6) masses of iron accumulation; common fine and medium distinct gray (5Y 6/1) iron depletions; moderately effervescent; slightly 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 A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 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 Bss horizon has hue of 10YR, 2.5Y, or 5Y and has value of 5 or 6. The chroma ranges from 4 to 8 in ped interiors and is 1 or 2 on ped exteriors or on faces of slickensides. Some pedons do not have a dominant matrix color and are multicolored in shades of gray, brown, olive, and red. This horizon has common or many redox depletions in shades of gray and redox accumulations in shades of brown, olive, and red. Some pedons have few or common nodules or soft masses of iron and manganese oxide. Texture is clay. Reaction ranges from very strongly acid to slightly acid.

The Bkss horizon 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. They are most common on the surface of peds or on slickensides. 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.

Watsonia Series

The Watsonia series consists of shallow, well drained soils that formed in clayey sediments and the underlying soft limestone (chalk). They are on narrow ridgetops in the uplands of the Blackland Prairie. Slopes range from 1 to 3 percent. The soils of the Watsonia series are clayey, smectitic, thermic, Leptic Hapluderts.

Watsonia soils are commonly associated with Demopolis, Oktibbeha, and Sumter soils. Demopolis and Sumter soils are in landscape positions similar to those of the Sumter 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 in slightly lower positions on the landscape and are very deep over chalk.

Typical pedon of Watsonia clay, in an area of Demopolis-Watsonia complex, 1 to 3 percent slopes; about 2.6 miles south of Tayloe, 800 feet north and 2,500 feet east of the southwest corner of sec. 26, T. 17 N., R. 6 E.

Ap—0 to 3 inches; dark brown (10YR 4/4) clay; weak coarse subangular blocky structure; very firm; many fine roots; moderately acid; abrupt smooth boundary.

Bss1—3 to 10 inches; yellowish red (5YR 5/6) clay; weak coarse angular blocky structure parting to moderate medium subangular blocky; very firm; common fine roots flattened on ped faces; common large intersecting slickensides that have prominent polished and grooved surfaces; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; moderately acid; clear wavy boundary.

Bss2—10 to 16 inches; light olive brown (2.5Y 5/6) 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 soft black masses (iron and manganese oxides); common soft masses of calcium carbonate at the contact with chalk; few medium distinct yellowish red (5YR 5/6) masses of iron accumulation; slightly effervescent; neutral; clear wavy boundary.

2Cr—16 to 80 inches; light gray (2.5Y 7/2) soft limestone (chalk); strong medium and thick platy rock structure; very firm; can be cut with hand tools and is rippable with light machinery; 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 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, and 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 mechanized equipment.

Formation of the Soils

In this section, the factors of soil formation are related to the soils in Perry 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. It forms through weathering and other processes that act on deposited or accumulated geologic material. The kind of soil that forms depends on the type of parent material; the climate under which soil material has existed since accumulation; the relief, or lay of the land; the plant and animal life in and on the soil; and the length of time that the forces of soil formation have acted on the soil material. 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 Perry County formed mainly in three kinds of parent material—loamy and clayey marine sediments that have undergone considerable weathering in place, water-deposited material on stream terraces and flood plains, and materials weathered from soft limestone (chalk). Luverne, Maubila, Smithdale, and Subran soils formed in weathered marine sediments. Annemaine, Eunola, Cahaba, Iuka, Kinston, Mantachie, and Sucarnoochee soils formed in the water-deposited material on stream terraces and flood plains. Demopolis, Oktibbeha, Sumter, Vaiden, and Watsonia soils formed in materials weathered from soft limestone (chalk).

Climate

The climate of Perry 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 54 inches a year.

This mild, humid climate favors the rapid decomposition of organic matter and hastens the rate of chemical reactions in the soil. The plentiful rainfall leaches large amounts of soluble bases and carries the less soluble fine particles downward, resulting in acid and sandy soils that are low in natural fertility. The large amount of moisture and the warm temperatures favor the growth of bacteria and fungi and speed the decomposition of organic matter, resulting in soils that are low in organic matter content.

Relief

Relief influences the formation of soil through its effect on drainage, runoff, and erosion. In Perry County, the topography ranges from nearly level to steep. The elevation ranges from about 100 to about 600 feet above sea level. Large flat areas and depressions generally are poorly drained, and accumulated water, received mainly as runoff from adjacent areas, slows the formation of soils. As the slope increases, the hazard of erosion increases 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 Perry County, differences caused by the direction of slope are slight and are 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 Perry County consisted of coniferous and deciduous trees as the 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 the plants that presently grow 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 Perry County are relatively young. The youngest soils are the alluvial soils on 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.

Soils on terraces of the Cahaba 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 oldest soils in the county are on uplands. They formed in marine sediments that have undergone considerable weathering.

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. Jedburg and Ocilla 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 Perry 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 Ochlockonee 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 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 in the Blackland Prairie, such as Demopolis, Okolona, Sucarnoochee, and Sumter soils, have developed in materials weathered from soft limestone (chalk). They are high 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 Greenville soils, have a subsoil that is uniformly bright in color. Soils that formed under poor drainage conditions, such as Kinston, Minter, and Myatt soils, have a grayish color. Soils that formed where drainage is intermediate have a subsoil that is mottled in shades of gray and brown. Eunola, Subran, 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 degree of relief is also related to the eluviation of clay from the E horizon to the Bt horizon.

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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.

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.

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.

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.

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, 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.

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*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, ironstone, or shale 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foot slope. The inclined surface at the base of a hill.

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.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

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 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.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Knoll. A small, low, rounded hill rising above adjacent landforms.

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.

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:

Low	0.5 to 2.0 percent
Medium	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.

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.

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.

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	1 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

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 35 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).

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.”

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 Marion Junction, Alabama)

Month	Temperature: Average daily maximum	Temperature: Average daily minimum	Temperature: Average daily	Temperature: 2 years in 10 will have-- Maximum temperature higher than--	Temperature: 2 years in 10 will have-- Minimum temperature lower than--	Temperature: Average number of growing degree days*	Precipitation: Average	Precipitation: 2 years in 10 will have-- Less than--	Precipitation: 2 years in 10 will have-- More than--	Precipitation: Average number of days with 0.10 inch or more	Precipitation: Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	54.5	32.3	43.4	77	7	54	5.26	3.33	7.00	8	0.3
February----	59.2	35.4	47.3	80	16	84	5.01	2.95	6.85	7	0.1
March-------	68.0	43.2	55.6	85	23	225	6.39	3.44	9.00	8	0.0
April-------	76.0	50.6	63.3	88	33	403	5.12	1.90	7.80	5	0.0
May---------	82.6	58.6	70.6	93	42	636	3.88	1.42	5.93	6	0.0
June--------	89.0	65.8	77.4	99	52	822	4.16	2.18	5.89	6	0.0
July--------	91.0	68.9	80.0	99	60	928	4.88	2.85	6.69	7	0.0
August------	90.4	68.3	79.3	98	59	906	3.69	1.83	5.30	6	0.0
September---	86.1	62.7	74.4	96	44	731	3.51	1.49	5.23	5	0.0
October-----	76.8	50.1	63.5	90	30	419	2.81	1.47	4.16	4	0.0
November----	67.3	41.5	54.4	84	21	191	3.91	2.24	5.40	6	0.0
December----	58.3	35.1	46.7	79	11	89	5.58	3.11	7.76	7	0.0
Yearly:											
Average---	74.9	51.0	63.0	---	---	---	---	---	---	---	---
Extreme---	104	-1	---	101	5	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,488	54.20	45.88	62.18	75	0.3

* 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 Marion Junction, Alabama)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 16	Mar. 26	Apr. 8
2 years in 10 later than--	Mar. 8	Mar. 18	Apr. 2
5 years in 10 later than--	Feb. 22	Mar. 3	Mar. 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 10	Nov. 2	Oct. 20
2 years in 10 earlier than--	Nov. 18	Nov. 6	Oct. 26
5 years in 10 earlier than--	Dec. 3	Nov. 15	Nov. 5

Table 3.--Growing Season

(Recorded in the period 1961-90 at Marion Junction, Alabama)

Probability	Daily minimum temperature during growing season		
	Higher than 24 oF	Higher than 28 oF	Higher than 32 oF
	Days	Days	Days
9 years in 10	249	228	203
8 years in 10	261	238	211
5 years in 10	283	256	226
2 years in 10	306	274	241
1 year in 10	318	283	249

Table 4.--Suitability and Limitations of General Soil Map Units for Specified Uses

Map unit	Extent of area	Cultivated crops	Pasture and hay	Woodland	Urban uses
	Pct				
1. Sumter-Kipling-Sucarnoochee	8	Suited: wetness, flooding, hazard of erosion.	Suited: wetness, flooding.	Poorly suited: restricted use of equipment, seedling mortality.	Poorly suited: flooding, wetness, shrink-swell potential, very slow permeability.
2. Vaiden-Okolona-Sucarnoochee	16	Suited: wetness, flooding, poor tilth.	Suited: wetness, flooding.	Poorly suited: restricted use of equipment, seedling mortality.	Poorly suited: flooding, wetness, shrink-swell potential, very slow permeability.
3. Smithdale-Subran-Greenville	8	Suited: slope, low fertility, hazard of erosion.	Well suited	Well suited	Suited: moderate to slow permeability, shrink-swell potential, slope.
4. Annemaine-Cahaba-Ochlockonee	6	Well suited	Well suited	Well suited	Poorly suited: flooding, wetness, slow permeability.
5. Luverne-Smithdale	40	Poorly suited: slope, low fertility, hazard of erosion.	Suited: slope, low fertility.	Well suited	Suited: slope, moderate and moderately slow permeability, shrink-swell potential.
6. Smithdale-Maubila-Saffell	13	Poorly suited: slope, low fertility, hazard of erosion.	Suited: slope, low fertility, droughtiness.	Well suited	Poorly suited: slope, moderate and slow permeability, small stones.
7. Mantachie-Iuka-Kinston	3	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness.	Suited: restricted use of equipment, seedling mortality.	Not suited: flooding, wetness.

Table 4.--Suitability and Limitations of General Soil Map Units for Specified Uses--Continued

Map unit	Extent of area	Cultivated crops	Pasture and hay	Woodland	Urban uses
	Pct				
8. Myatt-Eunola---------	2	Suited: wetness.	Suited: wetness.	Suited: restricted use of equipment, seedling mortality.	Poorly suited: flooding, wetness.
9. Demopolis-Sumter-Oktibbeha-----------	3	Suited: depth to rock, droughtiness, hazard of erosion.	Suited: droughtiness.	Poorly suited: seedling mortality, restricted use of equipment.	Poorly suited: depth to rock, shrink-swell potential, very slow permeability.
10. Luverne-Subran-Oktibbeha----------	1	Poorly suited: slope, hazard of erosion.	Suited: slope.	Well suited-----	Poorly suited: slope, shrink-swell potential, moderately slow and very slow permeability.

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AnA	Annemaine silt loam, 0 to 2 percent slopes, rarely flooded	10,820	2.4
BaA	Bama fine sandy loam, 0 to 2 percent slopes	1,530	0.3
BaB	Bama fine sandy loam, 2 to 5 percent slopes	4,640	1.0
CaA	Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded	8,030	1.7
CaB	Cahaba sandy loam, 2 to 5 percent slopes, rarely flooded	1,280	0.3
DsD2	Demopolis-Sumter complex, 3 to 8 percent slopes, eroded	4,650	1.0
DwB	Demopolis-Watsonia complex, 1 to 3 percent slopes	2,700	0.6
EnA	Eunola sandy loam, 0 to 2 percent slopes, rarely flooded	5,780	1.3
EtA	Eutaw clay, 0 to 1 percent slopes	1,880	0.4
FuA	Fluvaquents, ponded	1,710	0.4
GrA	Greenville loam, 0 to 2 percent slopes	2,280	0.5
GrB	Greenville loam, 2 to 5 percent slopes	4,840	1.1
KpB	Kipling clay loam, 1 to 5 percent slopes	17,070	3.7
LnB	Luverne sandy loam, 2 to 5 percent slopes	12,990	2.8
LsD	Luverne-Smithdale complex, 5 to 15 percent slopes	12,430	2.7
LsE	Luverne-Smithdale complex, 15 to 35 percent slopes	98,200	21.4
MIA	Mantachie, Iuka, and Kinston soils, 0 to 1 percent slopes, frequently flooded	29,790	6.5
MkC2	Maubila flaggy loam, 2 to 8 percent slopes, eroded	4,470	1.0
MsE	Maubila-Smithdale complex, 15 to 35 percent slopes	36,060	7.8
MtA	Minter silty clay loam, ponded	1,940	0.4
MyA	Myatt fine sandy loam, 0 to 1 percent slopes, rarely flooded	8,040	1.7
OaA	Ochlockonee sandy loam, 0 to 1 percent slopes, occasionally flooded	740	0.2
ObB	Ochlockonee-Riverview complex, gently undulating, frequently flooded	7,280	1.6
OcB	Ocilla-Jedburg complex, 1 to 3 percent slopes	1,430	0.3
OkB	Okolona silty clay loam, 0 to 3 percent slopes	18,030	3.9
OtC	Oktibbeha clay loam, 1 to 5 percent slopes	2,200	0.5
Pt	Pits	160	*
SaD	Saffell gravelly sandy loam, 5 to 15 percent slopes	6,500	1.4
SbB	Saffell-Maubila complex, 2 to 5 percent slopes	1,580	0.3
ScB	Smithdale sandy loam, 2 to 8 percent slopes	36,020	7.8
ScD	Smithdale sandy loam, 5 to 15 percent slopes	20,940	4.6
SdA	Subran fine sandy loam, 0 to 2 percent slopes	2,910	0.6
SdB	Subran loam, 2 to 5 percent slopes	3,280	0.7
SeA	Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded	20,790	4.5
SfB	Suffolk fine sandy loam, 1 to 5 percent slopes	4,380	1.0
SmB	Sumter silty clay loam, 1 to 3 percent slopes	7,790	1.7
SnD2	Sumter silty clay loam, 3 to 8 percent slopes, eroded	7,200	1.6
SoB2	Sumter-Oktibbeha complex, 1 to 3 percent slopes, eroded	1,920	0.4
SoD2	Sumter-Oktibbeha complex, 3 to 8 percent slopes, eroded	7,690	1.7
VaA	Vaiden clay, 0 to 1 percent slopes	20,830	4.5
VaB	Vaiden clay, 1 to 3 percent slopes	15,800	3.4
	Water	1,200	0.3
	Total	459,800	100.0

* Less than 0.1 percent.

Table 6.--Land Capability Classes 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
AnA----------------------- Annemaine	IIw	825	100	40	110	40
BaA----------------------- Bama	I	800	90	35	100	40
BaB----------------------- Bama	IIe	750	85	30	90	35
CaA----------------------- Cahaba	I	800	100	35	100	40
CaB----------------------- Cahaba	IIe	750	90	30	90	35
DsD2---------------------- Demopolis-Sumter	VIe	---	---	---	---	---
DwB----------------------- Demopolis-Watsonia	IVe	---	---	20	---	---
EnA----------------------- Eunola	IIw	825	100	35	110	40
EtA----------------------- Eutaw	IIIw	---	---	25	80	30
FuA----------------------- Fluvaquents	VIIw	---	---	---	---	---
GrA----------------------- Greenville	I	825	100	35	100	45
GrB----------------------- Greenville	IIe	775	95	30	90	40
KpB----------------------- Kipling	IIIe	550	85	30	90	35
LnB----------------------- Luverne	IIIe	---	75	30	---	35
LsD----------------------- Luverne-Smithdale	VIe	---	---	---	---	---
LsE----------------------- Luverne-Smithdale	VIIe	---	---	---	---	---
MIA----------------------- Mantachie, Iuka and Kinston	Vw	---	---	---	---	---
MkC2---------------------- Maubila	IVe	---	---	---	---	---
MsE----------------------- Maubila-Smithdale	VIIe	---	---	---	---	---

Table 6.--Land Capability Classes 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
MtA----------------------- Minter	VIIw	---	---	---	---	---
MyA----------------------- Myatt	IIIw	---	---	25	---	---
OaA----------------------- Ochlockonee	IIw	---	85	30	80	---
ObB----------------------- Ochlockonee-Riverview	IVw	---	---	30	---	---
OcB----------------------- Ocilla-Jedburg	IIw	---	75	30	---	---
OkB----------------------- Okolona	IIe	700	90	40	100	45
OtC----------------------- Oktibbeha	IIIe	500	---	25	60	---
Pt*----------------------- Pits	VIIIs	---	---	---	---	---
SaD----------------------- Saffell	VIe	---	---	---	---	---
SbB----------------------- Saffell-Maubila	IIIe	---	---	---	---	---
ScB----------------------- Smithdale	IIIe	---	---	25	---	35
ScD----------------------- Smithdale	IVe	---	---	---	---	---
SdA----------------------- Subran	IIw	600	90	40	100	40
SdB----------------------- Subran	IIIe	600	85	40	100	35
SeA----------------------- Sucarnoochee	IVw	---	---	35	80	---
SfB----------------------- Suffolk	IIe	700	90	30	90	35
SmB----------------------- Sumter	IIe	---	---	30	---	35
SnD2---------------------- Sumter	IVe	---	---	---	---	---
SoB2---------------------- Sumter-Oktibbeha	IIIe	---	---	25	60	---
SoD2---------------------- Sumter-Oktibbeha	IVe	---	---	---	---	---

See footnote at end of table.

Table 6.--Land Capability Classes 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
VaA----------------------- Vaiden	IIIw	500	80	35	90	35
VaB----------------------- Vaiden	IIIe	500	80	35	90	35

* 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	Improved bermuda-grass	Bahiagrass	Tall fescuegrass	Cool-season grass	Dallisgrass-clover	Johnsongrass hay
	AUM*	Tons	AUM*	AUM*	AUM*	AUM*	Tons
AnA------------- Annemaine	9.5	6.0	9.0	8.0	5.0	---	---
BaA------------- Bama	10.0	6.0	9.0	7.0	5.0	---	---
BaB------------- Bama	9.5	6.0	9.0	6.5	5.0	---	---
CaA------------- Cahaba	10.0	6.0	9.0	7.0	5.0	---	---
CaB------------- Cahaba	9.5	6.0	9.0	6.5	5.0	---	---
DsD2------------ Demopolis-Sumter	---	---	---	5.0	---	6.0	4.0
DwB------------- Demopolis-Watsonia	---	---	---	5.5	---	6.5	4.0
EnA------------- Eunola	9.5	6.0	9.0	7.0	5.0	---	---
EtA------------- Eutaw	---	---	---	6.0	---	7.5	4.0
FuA------------- Fluvaquents	---	---	---	---	---	---	---
GrA------------- Greenville	11.0	6.5	9.5	7.5	5.0	---	---
GrB------------- Greenville	11.0	6.0	9.0	7.0	5.0	---	---
KpB------------- Kipling	8.5	5.0	7.0	8.0	4.5	8.5	6.0
LnB------------- Luverne	9.5	5.0	8.5	6.5	4.5	---	---
LsD------------- Luverne-Smithdale	8.5	---	7.5	---	---	---	---
LsE------------- Luverne-Smithdale	---	---	---	---	---	---	---
MIA------------- Mantachie, Iuka and Kinston	---	---	---	---	---	---	---

See footnotes at end of table.

Table 7.--Yields per Acre of Pasture and Hay--Continued

Soil name and map symbol	Improved bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescuegrass	Cool-season grass	Dallisgrass-clover	Johnsongrass hay
	AUM*	Tons	AUM*	AUM*	AUM*	AUM*	Tons
MkC2------------ Maubila	5.5	---	6.0	---	---	---	---
MsE------------- Maubila-Smithdale	---	---	---	---	---	---	---
MtA------------- Minter	---	---	---	---	---	---	---
MyA------------- Myatt	7.5	5.0	9.0	---	---	---	---
OaA------------- Ochlockonee	8.0	5.0	8.0	---	4.5	---	---
ObB------------- Ochlockonee-Riverview	---	---	7.0	---	---	---	---
OcB------------- Ocilla-Jedburg	7.0	5.0	8.5	---	4.0	---	---
OkB------------- Okolona	---	---	---	9.0	5.0	10.0	8.0
OtC------------- Oktibbeha	---	---	---	7.0	4.0	7.5	6.0
Pt**------------ Pits	---	---	---	---	---	---	---
SaD------------- Saffell	5.5	---	5.0	---	---	---	---
SbB------------- Saffell-Maubila	5.5	---	---	---	---	---	---
ScB------------- Smithdale	9.0	5.0	8.5	6.5	5.0	---	---
ScD------------- Smithdale	9.0	---	7.5	---	4.0	---	---
SdA------------- Subran	9.5	6.0	9.0	7.0	5.0	---	---
SdB------------- Subran	9.5	6.0	9.0	6.5	5.0	---	---
SeA------------- Sucarnoochee	---	---	6.0	7.5	---	8.5	---
SfB------------- Suffolk	10.0	6.0	9.0	6.5	5.0	---	---
SmB------------- Sumter	---	---	---	7.5	---	7.5	6.0
SnD2------------ Sumter	---	---	---	5.5	---	6.5	4.5

See footnotes at end of table.

Table 7.--Yields per Acre of Pasture and Hay--Continued

Soil name and map symbol	Improved bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescuegrass	Cool-season grass	Dallisgrass-clover	Johnsongrass hay
	AUM*	Tons	AUM*	AUM*	AUM*	AUM*	Tons
SoB2------------ Sumter-Oktibbeha	---	---	---	7.5	---	7.5	6.0
SoD2------------ Sumter-Oktibbeha	---	---	---	5.5	---	6.5	4.5
VaA------------- Vaiden	---	---	---	8.0	4.5	8.5	6.0
VaB------------- Vaiden	---	---	---	8.0	4.5	8.5	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
AnA------------ Annemaine	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Yellow-poplar, loblolly pine, sweetgum, cherrybark oak.
						Shortleaf pine------	80		
						Sweetgum------------	80		
						Water oak-----------	90		
BaA, BaB-------- Bama	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	75		
CaA, CaB-------- Cahaba	10A	Slight	Slight	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, water oak, cherrybark oak, American sycamore, yellow-poplar.
						Shortleaf pine------	85		
						Yellow-poplar-------	105		
						Sweetgum------------	95		
						Water oak-----------	95		
						American sycamore---	95		
DsD2**:									
Demopolis------	3D	Slight	Moderate	Severe	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
Sumter---------	3C	Slight	Moderate	Severe	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
DwB**:									
Demopolis------	3D	Slight	Moderate	Severe	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
Watsonia-------	7D	Slight	Moderate	Severe	Moderate	Loblolly pine-------	75	1.6	Loblolly pine, eastern redcedar.
						Eastern redcedar----	40		
EnA------------ Eunola	10W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, water oak, sweetgum, cherrybark oak, American sycamore, yellow-poplar.
						Water oak-----------	85		
						Sweetgum------------	95		
						Yellow-poplar-------	95		
EtA------------ Eutaw	8W	Slight	Moderate	Severe	Severe	Loblolly pine-------	80	1.8	Loblolly pine.
						Sweetgum------------	80		
FuA**---------- Fluvaquents	---	Slight	Severe	Severe	Slight	Baldcypress---------	80	---	Baldcypress, green ash.
						Water tupelo--------	---		
GrA, GrB-------- Greenville	8A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine.
						Shortleaf pine------	70		
KpB------------ Kipling	9C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Sweetgum------------	85		
						Water oak-----------	80		

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
LnB------------- Luverne	9C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80		
LsD**:									
Luverne--------	9C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80		
Smithdale------	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine.
						Shortleaf pine------	80		
LsE**:									
Luverne--------	9R	Moderate	Severe	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80		
Smithdale------	9R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine.
						Shortleaf pine------	75		
MIA**:									
Mantachie------	11W	Slight	Severe	Severe	Severe	Loblolly pine-------	100	2.7	Loblolly pine, cherrybark oak, green ash, sweetgum, water oak, yellow-poplar, American sycamore.
						Water oak-----------	90		
						Green ash-----------	85		
						Sweetgum------------	90		
						Yellow-poplar-------	90		
						American sycamore---	85		
Iuka-----------	11W	Slight	Moderate	Moderate	Severe	Loblolly pine-------	100	2.7	Loblolly pine, eastern cottonwood, cherrybark oak, water oak, yellow-poplar, green ash, American sycamore.
						Sweetgum------------	105		
						Green ash-----------	90		
						Water oak-----------	100		
						Yellow-poplar-------	110		
						American sycamore---	110		
Kinston--------	11W	Slight	Severe	Severe	Severe	Loblolly pine-------	100	2.7	Loblolly pine, cherrybark oak, green ash, sweetgum, water oak.
						Sweetgum------------	90		
						Green ash-----------	85		
						Water oak-----------	100		
MkC2------------ Maubila	7C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	75	1.4	Loblolly pine, longleaf pine.
						Longleaf pine-------	60		
						Shortleaf pine------	65		
MsE**:									
Maubila--------	7R	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	75	1.4	Loblolly pine, longleaf pine.
						Longleaf pine-------	60		
						Shortleaf pine------	65		
Smithdale------	9R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine, longleaf pine.
						Shortleaf pine------	75		
MtA------------- Minter	4W	Slight	Severe	Severe	Slight	Baldcypress---------	80	---	Baldcypress, water tupelo.
						Water 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
MyA------------ Myatt	9W	Slight	Severe	Severe	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, water oak, green ash, cherrybark oak.
						Water oak-----------	95		
						Sweetgum------------	90		
						Green ash-----------	80		
OaA------------ Ochlockonee	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, sweetgum, cherrybark oak, yellow-poplar, American sycamore, green ash, water oak.
						Yellow-poplar-------	110		
						Sweetgum------------	110		
						Water oak-----------	100		
						American sycamore---	110		
						Green ash-----------	85		
ObB**:									
Ochlockonee----	11W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, sweetgum, cherrybark oak, yellow-poplar, American sycamore, green ash, water oak.
						Yellow-poplar-------	110		
						Sweetgum------------	110		
						Water oak-----------	100		
						American sycamore---	110		
						Green ash-----------	85		
Riverview------	11W	Slight	Moderate	Moderate	Severe	Loblolly pine-------	100	2.7	Loblolly pine, yellow-poplar, sweetgum, eastern cottonwood, American sycamore, cherrybark oak, water oak.
						Yellow-poplar-------	115		
						Sweetgum------------	105		
						American sycamore---	105		
						Water oak-----------	100		
						Green ash-----------	85		
OcB**:									
Ocilla---------	9W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, water oak, sweetgum, cherrybark oak.
						Water oak-----------	90		
						Sweetgum------------	100		
Jedburg--------	9W	Slight	Severe	Slight	Severe	Loblolly pine-------	90	2.2	Loblolly pine, sweetgum, cherrybark oak.
						Sweetgum------------	85		
OkB------------ Okolona	3C	Slight	Moderate	Moderate	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
OtC------------ Oktibbeha	9C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80		
						Sweetgum------------	80		
SaD------------ Saffell	7A	Slight	Slight	Slight	Moderate	Loblolly pine-------	70	1.4	Loblolly pine, longleaf pine.
						Shortleaf pine------	60		

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
SbB**:									
Saffell--------	7A	Slight	Slight	Moderate	Moderate	Loblolly pine-------	70	1.4	Loblolly pine, longleaf pine.
						Shortleaf pine------	60		
Maubila--------	7C	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	75	1.4	Loblolly pine, longleaf pine.
						Longleaf pine-------	60		
						Shortleaf pine------	65		
ScB, ScD-------- Smithdale	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine.
						Shortleaf pine------	75		
SdA, SdB-------- Subran	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine, sweetgum, water oak, cherrybark oak.
						Shortleaf pine------	75		
						Sweetgum------------	85		
						Water oak-----------	85		
SeA------------- Sucarnoochee	10W	Slight	Severe	Moderate	Severe	Sweetgum------------	100	1.4	American sycamore, water oak, sweetgum, green ash, cherrybark oak.
						American sycamore---	100		
						Water oak-----------	90		
						Green ash-----------	85		
SfB------------- Suffolk	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	85	2.1	Loblolly pine.
						Shortleaf pine------	70		
SmB------------- Sumter	3C	Slight	Slight	Moderate	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
SnD2------------ Sumter	3C	Moderate	Moderate	Severe	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
SoB2**, SoD2**:									
Sumter---------	3C	Moderate	Moderate	Severe	Moderate	Eastern redcedar----	40	*	Eastern redcedar.
Oktibbeha------	9C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80		
						Eastern redcedar----	55		
						Sweetgum------------	80		
VaA, VaB-------- Vaiden	8C	Slight	Moderate	Severe	Severe	Loblolly pine-------	80	1.8	Loblolly pine.
						Shortleaf pine------	65		
						Eastern redcedar----	45		

* 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 and gum. 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
AnA: Annemaine	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
BaA: Bama	Slight	Slight	Slight	Slight	Slight.
BaB: Bama	Slight	Slight	Moderate: slope.	Slight	Slight.
CaA: Cahaba	Severe: flooding.	Slight	Slight	Slight	Slight.
CaB: Cahaba	Severe: flooding.	Slight	Moderate: slope.	Slight	Slight.
DsD2*:					
Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.
Sumter	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey, erodes easily.	Severe: too clayey.
DwB*:					
Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: 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.
EnA: Eunola	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
EtA: Eutaw	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.
FuA: Fluvaquents	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
GrA: Greenville	Slight	Slight	Slight	Slight	Slight.
GrB: Greenville	Slight	Slight	Moderate: slope.	Slight	Slight.
KpB: Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.

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
LnB: Luverne	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
LsD*:					
Luverne	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
LsE*:					
Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MIA*:					
Mantachie	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Iuka	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Kinston	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: flooding, wetness.
MkC2: Maubila	Moderate: large stones, percs slowly.	Moderate: large stones, percs slowly.	Severe: large stones.	Moderate: large stones.	Moderate: large stones, slope.
MsE*:					
Maubila	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: large stones, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MtA: Minter	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
MyA: Myatt	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
OaA: Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
ObB*:					
Ochlockonee	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Riverview	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: 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
OcB*:					
Ocilla	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, droughty.
Jedburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
OkB Okolona	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
OtC Oktibbeha	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
Pt* Pits	Variable	Variable	Variable	Variable	Variable.
SaD Saffell	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Moderate: small stones.	Moderate: small stones, droughty, slope.
SbB*:					
Saffell	Severe: small stones.	Severe: small stones.	Severe: small stones.	Moderate: small stones.	Severe: small stones.
Maubila	Moderate: large stones, percs slowly.	Moderate: large stones, percs slowly.	Severe: large stones.	Moderate: large stones.	Moderate: large stones, slope.
ScB Smithdale	Slight	Slight	Moderate: slope.	Slight	Slight.
ScD Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
SdA Subran	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
SdB Subran	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
SeA 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.
SfB Suffolk	Slight	Slight	Moderate: slope.	Slight	Slight.
SmB Sumter	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Severe: depth to rock.

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
SnD2: Sumter	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey, erodes easily.	Severe: too clayey.
SoB2*, SoD2*:					
Sumter	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: too clayey, erodes easily.	Severe: too clayey.
Oktibbeha	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
VaA, VaB: Vaiden	Severe: wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey, wetness.	Severe: too clayey, 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							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AnA: Annemaine	Good	Good	Good	Good	Good	Good	Good	Good	Good	Poor.
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.
CaA, CaB: Cahaba	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DsD2*:										
Demopolis	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Sumter	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
DwB*:										
Demopolis	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Watsonia	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
EnA: Eunola	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EtA: Eutaw	Poor	Fair	Fair	Fair	Fair	Poor	Good	Fair	Fair	Fair.
FuA: Fluvaquents	Very poor.	Poor	Poor	Very poor.	Very poor.	Good	Good	Poor	Poor	Good.
GrA, GrB: Greenville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
KpB: Kipling	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
LnB: Luverne	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LsD*:										
Luverne	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Smithdale	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LsE*:										
Luverne	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

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
MIA*:										
Mantachie	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair.
Iuka	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Kinston	Poor	Poor	Poor	Fair	Poor	Good	Good	Poor	Good	Good.
MkC2 Maubila	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MsE*:										
Maubila	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MtA Minter	Very poor.	Poor	Poor	Very poor.	Very poor.	Good	Good	Poor	Poor	Good.
MyA Myatt	Fair	Fair	Good	Good	Good	Fair	Fair	Good	Good	Fair.
OaA Ochlockonee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
ObB*:										
Ochlockonee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
OcB*:										
Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
Jedburg	Fair	Fair	Good	Good	Good	Fair	Fair	Good	Good	Fair.
OkB Okolona	Good	Good	Fair	Good	Poor	Poor	Very poor.	Good	Good	Very poor.
OtC Oktibbeha	Fair	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Poor.
Pt* Pits	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
SaD Saffell	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
SbB*:										
Saffell	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Maubila	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ScB Smithdale	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

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
ScD---------------- Smithdale	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SdA, SdB----------- Subran	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
SeA---------------- Sucarnoochee	Fair	Fair	Poor	Good	Poor	Fair	Fair	Good	Good	Fair.
SfB---------------- Suffolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SmB, SnD2---------- Sumter	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
SoB2*:										
Sumter------------	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
Oktibbeha---------	Fair	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Poor.
SoD2*:										
Sumter------------	Poor	Fair	Fair	Fair	Poor	Poor	Very poor.	Good	Fair	Very poor.
Oktibbeha---------	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
VaA---------------- Vaiden	Fair	Good	Good	Good	Good	Poor	Fair	Fair	Good	Fair.
VaB---------------- Vaiden	Fair	Good	Good	Good	Good	Poor	Poor	Fair	Good	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
AnA Annemaine	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
BaA, BaB Bama	Slight	Slight	Slight	Slight	Slight	Slight.
CaA, CaB Cahaba	Moderate: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
DsD2*:						
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.
Sumter	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
DwB*:						
Demopolis	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.
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.
EnA Eunola	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
EtA Eutaw	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.
FuA Fluvaquents	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
GrA, GrB Greenville	Moderate: too clayey.	Slight	Slight	Slight	Slight	Slight.
KpB Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: wetness, too clayey.
LnB Luverne	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Moderate: too clayey.
LsD*:						
Luverne	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.

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
LsD*:						
Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
LsE*:						
Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MIA*:						
Mantachie	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
Iuka	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: flooding.	Severe: flooding, wetness.
MkC2 Maubila	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones, slope.
MsE*:						
Maubila	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MtA Minter	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
MyA Myatt	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
OaA Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
ObB*:						
Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Riverview	Moderate: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
OcB*:						
Ocilla	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.

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
OcB*:						
Jedburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
OkB Okolona	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
OtC 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.
SaD Saffell	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: small stones, droughty, slope.
SbB*:						
Saffell	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: small stones.
Maubila	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Moderate: large stones.
ScB Smithdale	Slight	Slight	Slight	Slight	Slight	Slight.
ScD Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
SdA, SdB Subran	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
SeA 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.
SfB Suffolk	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
SmB Sumter	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: depth to rock, too clayey.
SnD2 Sumter	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
SoB2*, SoD2*:						
Sumter	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.

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
SoB2*, SoD2*:						
Oktibbeha--------	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
VaA, VaB----------Vaiden	Severe: wetness, cutbanks cave.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.

* 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
AnA----------------- Annemaine	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
BaA----------------- Bama	Slight-----------	Moderate: seepage.	Slight-----------	Slight-----------	Good.
BaB----------------- Bama	Slight-----------	Moderate: seepage, slope.	Slight-----------	Slight-----------	Good.
CaA, CaB------------ Cahaba	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
DsD2*:					
Demopolis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
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.
DwB*:					
Demopolis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
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.
EnA----------------- Eunola	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness, thin layer.
EtA----------------- Eutaw	Severe: wetness, percs slowly.	Slight-----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
FuA----------------- Fluvaquents	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
GrA----------------- Greenville	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
GrB----------------- Greenville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.

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
KpB----------------- Kipling	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
LnB----------------- Luverne	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
LsD*:					
Luverne------------	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Smithdale----------	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
LsE*:					
Luverne------------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale----------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
MIA*:					
Mantachie----------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Iuka---------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Kinston------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
MkC2---------------- Maubila	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
MsE*:					
Maubila------------	Severe: percs slowly, slope.	Severe: slope.	Severe: too clayey, slope.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale----------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
MtA----------------- Minter	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.

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
MyA----------------- Myatt	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
OaA----------------- Ochlockonee	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
ObB*:					
Ochlockonee--------	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
Riverview----------	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
OcB*:					
Ocilla-------------	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
Jedburg------------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
OkB----------------- Okolona	Severe: percs slowly.	Slight-----------	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
OtC----------------- Oktibbeha	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
Pt*----------------- Pits	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
SaD----------------- Saffell	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Poor: small stones.
SbB*:					
Saffell------------	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight-----------	Poor: small stones.
Maubila------------	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
ScB----------------- Smithdale	Slight-----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
ScD----------------- Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
SdA----------------- Subran	Severe: wetness, percs slowly.	Slight-----------	Severe: too clayey.	Moderate: wetness.	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
SdB----------------- Subran	Severe: wetness, percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
SeA----------------- Sucarnoochee	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
SfB----------------- Suffolk	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight-----------	Fair: thin layer.
SmB, SnD2----------- 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.
SoB2*, SoD2*:					
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.
Oktibbeha----------	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
VaA----------------- Vaiden	Severe: wetness, percs slowly.	Slight-----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
VaB----------------- Vaiden	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.

* 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
AnA Annemaine	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
BaA, BaB Bama	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
CaA, CaB Cahaba	Good	Probable	Improbable: too sandy.	Good.
DsD2*:				
Demopolis	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Sumter	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
DwB*:				
Demopolis	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Watsonia	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey.
EnA Eunola	Fair: wetness.	Probable	Improbable: too sandy.	Good.
EtA Eutaw	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
FuA Fluvaquents	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
GrA, GrB Greenville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
KpB Kipling	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LnB Luverne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LsD*:				
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
LsD*:				
Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
LsE*:				
Luverne	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MIA*:				
Mantachie	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Iuka	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Kinston	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
MkC2 Maubila	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
MsE*:				
Maubila	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MtA Minter	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
MyA Myatt	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
OaA Ochlockonee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
ObB*:				
Ochlockonee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
OcB*:				
Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Jedburg	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

Table 13.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
OkB------------------- Okolona	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
OtC------------------- Oktibbeha	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Pt*------------------- Pits	Variable-------------	Variable-------------	Variable-------------	Variable.
SaD------------------- Saffell	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
SbB*:				
Saffell--------------	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Maubila--------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
ScB------------------- Smithdale	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
ScD------------------- Smithdale	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
SdA, SdB-------------- Subran	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SeA------------------- Sucarnoochee	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
SfB------------------- Suffolk	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Good.
SmB, SnD2------------- Sumter	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SoB2*, SoD2*:				
Sumter---------------	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Oktibbeha------------	Poor: shrink-swell, low strength.	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
VaA, VaB-------------- Vaiden	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

* 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
AnA: Annemaine	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
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.
CaA: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Favorable	Favorable	Favorable.
CaB: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Slope	Favorable	Favorable.
DsD2*:						
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.
Sumter	Moderate: depth to rock, slope.	Severe: thin layer.	Deep to water, percs slowly.	Slope, slow intake, percs slowly.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
DwB*:						
Demopolis	Severe: depth to rock.	Severe: thin layer.	Deep to water	Depth to rock	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.
EnA: Eunola	Severe: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Favorable.
EtA: Eutaw	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
FuA: Fluvaquents	Slight	Severe: piping, ponding.	Ponding, flooding.	Ponding, flooding.	Ponding	Wetness.
GrA: Greenville	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable	Favorable	Favorable.
GrB: Greenville	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope	Favorable	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
KpB: Kipling	Moderate: slope.	Severe: hard to pack.	Percs slowly	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
LnB: Luverne	Moderate: slope.	Severe: piping, hard to pack.	Deep to water	Slope	Favorable	Favorable.
LsD*, LsE*:						
Luverne	Severe: slope.	Severe: piping, hard to pack.	Deep to water	Slope	Slope	Slope.
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
MIA*:						
Mantachie	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Iuka	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
Kinston	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
MkC2: Maubila	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
MsE*:						
Maubila	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
MtA: Minter	Slight	Severe: ponding.	Ponding, percs slowly, flooding.	Ponding, droughty, percs slowly.	Ponding, percs slowly.	Wetness, droughty.
MyA: Myatt	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Wetness.
OaA: Ochlockonee	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
ObB*:						
Ochlockonee	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
Riverview	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	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
OcB*:						
Ocilla	Severe: seepage.	Severe: piping, wetness.	Favorable	Wetness, droughty, fast intake.	Wetness	Droughty.
Jedburg	Slight	Severe: wetness.	Favorable	Wetness	Wetness	Wetness.
OkB Okolona	Slight	Severe: hard to pack.	Deep to water	Percs slowly	Erodes easily, percs slowly.	Erodes easily, percs slowly.
OtC 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.
SaD Saffell	Severe: seepage, slope.	Moderate: thin layer.	Deep to water	Slope, droughty, soil blowing.	Slope	Slope, droughty.
SbB*:						
Saffell	Severe: seepage.	Moderate: thin layer.	Deep to water	Slope, droughty.	Erodes easily	Droughty.
Maubila	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
ScB Smithdale	Severe: seepage.	Severe: piping.	Deep to water	Slope	Favorable	Favorable.
ScD Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
SdA Subran	Slight	Moderate: hard to pack, wetness.	Percs slowly	Wetness	Wetness, percs slowly.	Percs slowly.
SdB Subran	Moderate: slope.	Moderate: hard to pack, wetness.	Percs slowly, slope.	Slope, wetness.	Wetness, percs slowly.	Percs slowly.
SeA Sucarnoochee	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
SfB Suffolk	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Slope	Favorable	Favorable.
SmB Sumter	Moderate: depth to rock.	Severe: thin layer.	Deep to water	Percs slowly	Depth to rock, erodes easily.	Erodes easily, depth to rock.
SnD2 Sumter	Moderate: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, percs slowly.	Depth to rock, erodes easily.	Erodes easily, depth to rock.

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
SoB2*:						
Sumter-----------	Moderate: depth to rock.	Severe: thin layer.	Deep to water	Slow intake, percs slowly.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Oktibbeha--------	Slight---------	Severe: hard to pack.	Deep to water	Slow intake, percs slowly.	Percs slowly---	Percs slowly.
SoD2*:						
Sumter-----------	Moderate: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, slow intake, percs slowly.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Oktibbeha--------	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, slow intake, percs slowly.	Percs slowly---	Percs slowly.
VaA, VaB---------- Vaiden	Slight---------	Severe: hard to pack.	Percs slowly---	Wetness, slow intake.	Wetness, percs slowly.	Wetness, percs slowly.

* 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	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
AnA-------------- Annemaine	0-5	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	20-35	5-20
	5-18	Clay, clay loam, silty clay.	CL, ML	A-6, A-7-6	0	95-100	95-100	85-100	70-98	30-50	10-25
	18-42	Clay, silty clay, silty clay loam.	CH, MH, CL, ML	A-7-5, A-7	0	95-100	95-100	90-100	80-99	43-70	13-35
	42-58	Sandy clay loam, loam, clay loam.	SC, CL, ML	A-4, A-6	0	95-100	95-100	80-100	36-80	20-35	6-15
	58-75	Sandy clay loam, fine sandy loam, sandy loam.	SM, SC-SM, SC	A-2, A-4	0	95-100	95-100	60-100	30-50	<20	NP-10
BaA-------------- Bama	0-6	Fine sandy loam	SM, SC, SC-SM, CL-ML	A-4	0	95-100	85-100	70-95	40-70	<30	NP-10
	6-75	Loam, sandy clay loam, clay loam.	SC, CL	A-4, A-6	0	85-100	80-100	80-95	40-70	20-40	8-18
BaB-------------- Bama	0-6	Fine sandy loam	SM, SC, SC-SM, CL-ML	A-4	0	95-100	85-100	70-95	40-70	<30	NP-10
	6-65	Loam, sandy clay loam, clay loam.	SC, CL	A-4, A-6	0	85-100	80-100	80-95	40-70	20-40	8-18
CaA-------------- Cahaba	0-15	Sandy loam-------	SM	A-4, A-2-4	0	95-100	95-100	65-90	29-45	<20	NP
	15-45	Sandy clay loam, loam, clay loam.	SC, CL, SC-SM	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	4-15
	45-65	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-87	10-35	<20	NP
CaB-------------- Cahaba	0-5	Sandy loam-------	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	<20	NP
	5-50	Sandy clay loam, loam, clay loam.	SC, CL, SC-SM	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	4-15
	50-65	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-87	10-35	<20	NP
DsD2*:											
Demopolis-------	0-4	Loam-------------	CL, CL-ML	A-4, A-6, A-7	0-5	85-100	75-90	65-85	50-80	24-44	6-20
	4-10	Loam, clay loam, silty clay loam.	CL, CL-ML	A-2, A-4, A-6	0-5	85-100	75-98	60-85	50-95	24-44	6-20
	10-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
Sumter----------	0-5	Silty clay-------	CL	A-7, A-6	0	90-100	85-100	80-98	75-90	35-50	16-25
	5-14	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	85-100	78-98	75-95	75-95	35-55	16-32
	14-30	Silty clay loam, silty clay.	CH, CL	A-6, A-7	0	85-100	65-98	60-95	55-95	35-55	16-32
	30-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
DwB*:											
Demopolis-------	0-5	Silt loam--------	CL, CL-ML	A-4, A-6	0-5	85-100	75-90	75-90	70-90	20-40	6-20
	5-13	Loam, clay loam, silty clay loam.	CL, CL-ML	A-2, A-4, A-6	0-5	85-100	75-98	60-85	50-95	24-44	6-20
	13-80	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	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
DwB*:											
Watsonia--------	0-3	Clay-------------	CL, CH	A-7	0	100	100	95-100	90-100	42-64	30-40
	3-10	Clay, silty clay	CH	A-7	0	100	100	95-100	95-100	65-85	45-60
	10-16	Clay, silty clay	CH	A-7	0	100	95-100	95-100	95-100	60-80	40-60
	16-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
EnA-------------- Eunola	0-10	Sandy loam-------	SM	A-2, A-4	0	100	98-100	60-85	30-50	<20	NP
	10-23	Sandy clay loam, clay loam, fine sandy loam.	SM, SC, SC-SM, CL	A-4, A-2, A-6	0	100	90-100	75-95	30-60	<36	NP-15
	23-48	Sandy clay loam, sandy clay, clay loam.	SM, SC, ML, CL	A-4, A-6, A-7	0	100	98-100	80-95	36-60	22-50	3-26
	48-60	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4	0	100	98-100	60-70	30-40	<30	NP-10
EtA-------------- Eutaw	0-4	Clay-------------	CH, MH	A-7	0	100	100	95-100	90-100	51-70	23-40
	4-60	Clay-------------	CH, MH	A-7	0	100	100	95-100	80-95	51-100	25-60
FuA-------------- Fluvaquents	0-6	Loam-------------	ML, CL-ML	A-4	0	100	90-100	80-90	50-80	<25	NP-7
	6-60	Stratified sandy loam to clay.	ML, CL	A-7, A-4, A-6	0	100	90-100	75-100	60-95	20-45	8-22
GrA-------------- Greenville	0-6	Loam-------------	CL, SC, CL-ML, SC-SM	A-4, A-6	0	95-100	95-100	75-95	45-75	20-35	6-15
	6-65	Clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	0	98-100	95-100	80-99	40-80	28-50	7-25
GrB-------------- Greenville	0-5	Loam-------------	CL, SC, CL-ML, SC-SM	A-4, A-6	0	95-100	95-100	75-95	45-75	20-35	6-15
	5-65	Clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	0	98-100	95-100	80-99	40-80	28-50	7-25
KpB-------------- Kipling	0-5	Clay loam--------	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	15-25
	5-65	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	100	100	95-100	85-95	38-70	22-45
	65-80	Clay, silty clay	CH, CL	A-7	0	100	100	90-100	75-95	48-80	26-50
LnB-------------- Luverne	0-5	Sandy loam-------	ML, SM	A-4, A-2	0	87-100	84-100	80-100	30-60	<20	NP
	5-30	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0	95-100	90-100	85-100	50-95	38-70	8-30
	30-35	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0	95-100	85-100	85-100	36-76	32-56	2-14
	35-60	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0	90-100	85-100	70-100	25-65	28-49	3-16
LsD*:											
Luverne---------	0-6	Sandy loam-------	ML, SM	A-4, A-2	0	87-100	84-100	80-100	30-60	<20	NP
	6-43	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0	95-100	90-100	85-100	50-95	38-70	8-30
	43-65	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0	90-100	85-100	70-100	25-65	28-49	3-16

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
LsD*:											
Smithdale-------	0-13	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	13-38	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	38-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
LsE*:											
Luverne---------	0-3	Sandy loam-------	ML, SM	A-4, A-2	0	87-100	84-100	80-100	30-60	<20	NP
	3-35	Clay loam, sandy clay, clay.	ML, MH	A-5, A-7, A-4	0	95-100	90-100	85-100	50-95	38-70	8-30
	35-43	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-7	0	95-100	85-100	85-100	36-76	32-56	2-14
	43-65	Stratified loamy sand to sandy clay loam.	SM, ML	A-4, A-6, A-2, A-7	0	90-100	85-100	70-100	25-65	28-49	3-16
Smithdale-------	0-6	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	6-42	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	42-65	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
MIA*:											
Mantachie-------	0-5	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	90-100	70-85	<30	NP-10
	5-60	Loam, clay loam, sandy clay loam.	CL, SC, SC-SM, CL-ML	A-4, A-6	0	95-100	90-100	80-95	45-80	20-40	5-15
Iuka------------	0-7	Sandy loam-------	SM, SC-SM, ML, CL-ML	A-4, A-2	0	95-100	90-100	70-100	30-60	<20	NP-7
	7-38	Fine sandy loam, loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-4	0	95-100	85-100	65-100	36-75	<30	NP-7
	38-60	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	90-100	70-100	25-60	<30	NP-7
Kinston---------	0-5	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	100	98-100	85-100	50-97	17-40	4-15
	5-60	Loam, clay loam, sandy clay loam.	CL	A-4, A-6	0	100	95-100	75-100	60-95	20-45	8-22
MkC2------------- Maubila	0-3	Flaggy sandy loam	SM, SP-SM, SC-SM	A-2	10-35	85-100	85-100	60-95	10-35	<25	NP-6
	3-34	Sandy clay loam, clay loam.	SC, CL	A-6, A-7	0-10	95-100	85-100	85-100	45-90	35-50	12-25
	34-52	Clay loam, clay, silty clay.	CL, CH	A-6, A-7, A-7-6	0	95-100	90-100	85-100	60-98	35-60	20-45
	52-80	Clay, sandy clay loam, clay loam.	CL, CH	A-6, A-7, A-7-6	0	95-100	90-100	85-100	60-98	35-60	20-45
MsE*:											
Maubila---------	0-4	Flaggy sandy loam	SM, SP-SM, SC-SM	A-2	10-35	85-100	85-100	60-95	10-35	<25	NP-6
	4-35	Sandy clay loam, clay loam.	SC, CL	A-6, A-7	0-10	95-100	85-100	85-100	45-90	35-50	12-25
	35-65	Clay, sandy clay loam, clay loam.	CL, CH	A-6, A-7, A-7-6	0	95-100	90-100	85-100	60-98	35-60	20-45

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
MsE*:											
Smithdale-------	0-3	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	3-33	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	33-65	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
MtA-------------- Minter	0-4	Silty clay loam	CL, CH	A-6, A-7	0	100	100	90-100	75-95	35-55	15-28
	4-60	Clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	100	100	90-100	75-95	37-59	18-32
MyA-------------- Myatt	0-11	Fine sandy loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	95-100	95-100	60-90	30-70	<25	NP-5
	11-23	Loam, sandy clay loam, clay loam.	SM, SC, SC-SM, CL	A-4	0	95-100	95-100	80-100	40-80	<30	NP-10
	23-65	Gravelly fine sandy loam, sandy clay loam, clay loam.	SC-SM, SC, CL-ML, CL	A-6, A-4, A-2	0	75-100	60-100	60-100	30-97	15-40	5-20
OaA-------------- Ochlockonee	0-9	Sandy loam-------	SM, ML, SC-SM, CL-ML	A-4, A-2	0	100	95-100	65-90	40-70	<26	NP-5
	9-65	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9
ObB*:											
Ochlockonee-----	0-4	Sandy loam-------	SM, ML, SC-SM, CL-ML	A-4, A-2	0	100	95-100	65-90	40-70	<26	NP-5
	4-32	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	0	100	95-100	95-100	36-75	<32	NP-9
	32-60	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9
Riverview-------	0-10	Silt loam, loam	CL, CL-ML, ML	A-4, A-6	0	100	100	90-100	60-80	15-30	3-14
	10-35	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	3-20
	35-60	Loamy fine sand, sandy loam, sand.	SM, SC-SM	A-2, A-4	0	100	100	50-95	15-45	<20	NP-7
OcB*:											
Ocilla----------	0-26	Loamy fine sand	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	0-14	NP
	26-58	Sandy loam, sandy clay loam, fine sandy loam.	SM, CL, SC, ML	A-2, A-4, A-6	0	100	95-100	80-100	20-55	20-40	NP-18
	58-65	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-4, A-6, A-7	0	100	95-100	80-100	36-60	20-45	7-20
Jedburg---------	0-14	Fine sandy loam	SM, SC-SM, SC	A-4	0	100	95-100	60-95	40-75	<30	NP-10
	14-65	Loam, silt loam, clay loam.	CL	A-6, A-4	0	100	95-100	85-100	70-95	25-40	9-20

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
OkB-------------- Okolona	0-6	Silty clay loam	CL, CH	A-7	0	100	100	95-100	85-98	46-55	25-32
	6-60	Silty clay, clay	CH, MH	A-7-5, A-7-6	0	95-100	95-100	95-100	90-98	60-90	29-65
OtC-------------- Oktibbeha	0-5	Clay loam--------	CL	A-6, A-7	0	100	100	90-100	70-100	27-40	32-50
	5-60	Clay-------------	CH	A-7	0	100	100	95-100	95-100	55-75	35-50
	60-75	Clay, silty clay	CL	A-7	0	100	100	90-100	90-100	42-65	30-45
Pt*-------------- Pits	0-60	Variable---------	---	---	---	---	---	---	---	---	---
SaD-------------- Saffell	0-5	Gravelly sandy loam.	SM, SC-SM, GM, GM-GC	A-1, A-2, A-4	0	50-80	50-75	40-70	20-50	<25	NP-5
	5-10	Gravelly fine sandy loam, gravelly sandy clay loam, gravelly loam.	GC, SC, SC-SM, GM-GC	A-2, A-1, A-4, A-6	0-10	30-75	25-75	20-70	12-50	20-40	4-18
	10-42	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly loam.	GC, GP-GC, GM-GC	A-2, A-1, A-4, A-6	0-10	25-55	25-50	20-50	12-40	20-40	4-15
	42-60	Gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand.	GM, GC, SM, SC	A-1, A-2, A-3	0-15	15-80	10-75	10-65	5-35	<35	NP-15
SbB*:											
Saffell---------	0-6	Very gravelly sandy loam.	GM, GM-GC, GP-GM	A-1, A-2	0	25-60	25-50	20-45	12-35	<20	NP-5
	6-44	Very gravelly sandy clay loam, very gravelly sandy loam, very gravelly loam.	GC, GP-GC, GM-GC	A-2, A-1, A-4, A-6	0-10	25-55	25-50	20-50	12-40	20-40	4-15
	44-65	Gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand.	GM, GC, SM, SC	A-1, A-2, A-3	0-15	25-80	10-75	10-65	5-35	<30	NP-10
Maubila---------	0-2	Flaggy sandy loam	SM, SP-SM, SC-SM	A-2	10-35	85-100	85-100	60-95	10-35	<25	NP-6
	2-52	Clay loam, clay, silty clay.	CL, CH	A-6, A-7, A-7-6	0	95-100	90-100	85-100	60-98	35-60	20-45
	52-65	Clay, sandy clay loam, clay loam.	CL, CH	A-6, A-7, A-7-6	0	95-100	90-100	85-100	60-98	35-60	20-45
ScB-------------- Smithdale	0-11	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	11-51	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	51-65	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
ScD-------------- Smithdale	0-10	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	10-42	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	42-65	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
SdA-------------- Subran	0-6	Fine sandy loam	SM, ML, CL-ML	A-4, A-2	0	95-100	95-100	80-95	30-75	<30	NP-7
	6-33	Clay loam, clay	CL, CH, MH	A-7-6, A-6	0	95-100	95-100	85-100	45-90	35-60	16-40
	33-65	Clay loam, clay, silty clay.	CL, CH, MH	A-7-5, A-7-6, A-6	0	95-100	95-100	85-100	45-90	35-60	16-40
SdB-------------- Subran	0-5	Loam-------------	CL, ML	A-4, A-6	0	95-100	95-100	80-95	50-75	25-38	9-16
	5-22	Clay loam, clay	CL, CH, MH	A-7-6 A-6	0	95-100	95-100	85-100	45-90	35-60	16-40
	22-75	Clay loam, clay, silty clay.	CL, CH, MH	A-7-5, A-7-6, A-6	0	95-100	95-100	85-100	45-90	35-60	16-40
SeA-------------- Sucarnoochee	0-16	Clay-------------	CL, CH, MH	A-7	0	98-100	95-100	90-100	85-95	40-65	15-35
	16-54	Silty clay, clay	MH, CH, CL	A-7	0	98-100	95-100	90-100	85-98	45-70	20-40
	54-60	Silty clay, clay	CH, MH	A-7	0	98-100	95-100	90-100	85-98	50-80	25-45
SfB-------------- Suffolk	0-16	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	95-100	90-100	55-85	25-60	15-25	NP-7
	16-53	Sandy clay loam, clay loam, fine sandy loam.	SC, CL	A-2, A-6	0	95-100	90-100	50-95	25-75	20-40	10-25
	53-65	Loamy fine sand, gravelly sand, loamy sand.	SP, SM, SC-SM	A-1, A-2, A-3, A-4	0	75-100	60-100	30-80	3-50	<18	NP-6
SmB-------------- Sumter	0-7	Silty clay loam	CL	A-7, A-6	0	90-100	85-100	80-98	75-90	35-50	16-25
	7-30	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	85-100	78-98	75-95	75-95	35-55	16-32
	30-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
SnD2------------- Sumter	0-4	Silty clay loam	CL	A-7, A-6	0	90-100	85-100	80-98	75-90	35-50	16-25
	4-28	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	85-100	78-98	75-95	75-95	35-55	16-32
	28-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
SoB2*:											
Sumter----------	0-6	Silty clay-------	CL	A-7, A-6	0	90-100	85-100	80-98	75-90	35-50	16-25
	6-38	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	85-100	78-98	75-95	75-95	35-55	16-32
	38-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
Oktibbeha-------	0-4	Clay-------------	CH, CL	A-7	0	100	100	90-100	90-100	42-64	30-40
	4-56	Clay-------------	CH	A-7	0	100	100	95-100	95-100	55-75	35-50
	56-65	Clay, silty clay	CL	A-7	0	100	100	90-100	90-100	42-65	30-45

See footnote at end of table.

Table 15.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SoD2*:											
Sumter----------	0-3	Silty clay-------	CL	A-7, A-6	0	90-100	85-100	80-98	75-90	35-50	16-25
	3-18	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	85-100	78-98	75-95	75-95	35-55	16-32
	18-34	Channery silty clay loam, silty clay loam, silty clay.	CH, CL	A-6, A-7	0	80-100	65-98	60-95	55-95	35-55	16-32
	34-80	Weathered bedrock	---	---	---	---	---	---	---	---	---
Oktibbeha-------	0-3	Clay-------------	CH, CL	A-7	0	100	100	90-100	90-100	42-64	30-40
	3-35	Clay-------------	CH	A-7	0	100	100	95-100	95-100	55-75	35-50
	35-60	Clay, silty clay	CL	A-7	0	100	100	90-100	90-100	42-65	30-45
VaA-------------- Vaiden	0-6	Clay-------------	MH, CH	A-7	0	100	100	95-100	90-100	50-60	20-30
	6-23	Clay-------------	CH, MH	A-7	0	100	100	95-100	85-100	50-90	30-50
	23-72	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	85-100	50-90	30-52
VaB-------------- Vaiden	0-5	Clay-------------	MH, CH	A-7	0	100	100	95-100	90-100	50-60	20-30
	5-21	Clay-------------	CH, MH	A-7	0	100	100	95-100	85-100	50-90	30-50
	21-60	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	85-100	50-90	30-52

* 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
AnA--------------	0-5	10-20	1.30-1.55	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.37	5	.5-1
Annemaine	5-18	35-50	1.30-1.45	0.06-0.2	0.14-0.18	4.5-5.5	Moderate-----	0.37		
	18-42	35-60	1.25-1.40	0.06-0.2	0.14-0.18	4.5-5.5	Moderate-----	0.37		
	42-58	20-35	1.30-1.60	0.2-0.6	0.14-0.18	4.5-5.5	Low----------	0.37		
	58-75	5-25	1.40-1.60	0.2-2.0	0.14-0.18	4.5-5.5	Low----------	0.32		
BaA--------------	0-6	7-22	1.30-1.60	0.6-6.0	0.08-0.15	4.5-6.0	Low----------	0.24	5	.5-1
Bama	6-75	20-35	1.40-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
BaB--------------	0-6	7-22	1.30-1.60	0.6-6.0	0.08-0.15	4.5-6.0	Low----------	0.24	5	.5-1
Bama	6-65	20-35	1.40-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.32		
CaA--------------	0-15	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
Cahaba	15-45	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28		
	45-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
CaB--------------	0-5	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
Cahaba	5-50	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28		
	50-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
DsD2*:										
Demopolis-------	0-4	17-35	1.35-1.60	0.2-0.6	0.10-0.17	7.4-8.4	Moderate-----	0.37	2	1-4
	4-10	20-35	1.40-1.65	0.2-0.6	0.03-0.06	7.4-8.4	Low----------	0.32		
	10-80	---	---	0.00-0.01	---	---	-------------	----		
Sumter----------	0-5	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	3	2-5
	5-14	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	14-30	35-57	1.15-1.50	0.06-2.0	0.11-0.16	7.4-8.4	Moderate-----	0.32		
	30-80	---	---	0.00-0.01	---	---	-------------	----		
DwB*:										
Demopolis-------	0-5	12-27	1.40-1.55	0.2-0.6	0.19-0.21	7.4-8.4	Low----------	0.43	2	1-4
	5-13	20-35	1.40-1.65	0.2-0.6	0.03-0.06	7.4-8.4	Low----------	0.32		
	13-80	---	---	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
	3-10	60-80	1.00-1.40	<0.06	0.12-0.16	4.5-6.5	High---------	0.32		
	10-16	50-70	1.00-1.40	<0.06	0.12-0.16	6.1-8.4	High---------	0.37		
	16-80	---	---	0.00-0.01	---	---	-------------	----		
EnA--------------	0-10	10-20	1.35-1.65	2.0-6.0	0.10-0.14	4.5-5.5	Low----------	0.20	5	.5-2
Eunola	10-23	18-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.28		
	23-48	18-45	1.30-1.60	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.32		
	48-60	8-25	1.35-1.65	2.0-6.0	0.10-0.16	4.5-5.5	Low----------	0.24		
EtA--------------	0-4	40-50	1.40-1.50	0.06-0.2	0.16-0.19	4.5-6.0	High---------	0.32	5	1-3
Eutaw	4-60	60-70	1.55-1.65	<0.06	0.15-0.18	4.5-6.0	Very high----	0.28		
FuA--------------	0-6	2-18	1.25-1.35	2.0-6.0	0.15-0.20	3.6-5.5	Low----------	0.28	5	3-10
Fluvaquents	6-60	15-45	1.35-1.60	0.06-0.2	0.10-0.20	3.6-5.5	Low----------	0.37		
GrA--------------	0-6	15-30	1.30-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.24	5	1-3
Greenville	6-65	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.17		
GrB--------------	0-5	15-30	1.30-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.24	5	1-3
Greenville	5-65	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.17		

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
KpB-------------- Kipling	0-5	28-32	1.30-1.45	0.06-0.2	0.20-0.22	3.6-6.0	Moderate-----	0.32	5	.5-2
	5-65	36-60	1.37-1.41	0.06-0.2	0.20-0.22	3.6-8.4	High---------	0.32		
	65-80	40-60	1.57-1.60	<0.06	0.18-0.20	5.1-8.4	Very high----	0.32		
LnB-------------- Luverne	0-5	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low----------	0.24	5	.5-1
	5-30	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	30-35	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.28		
	35-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
LsD*:										
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	.5-1
	6-43	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	43-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
Smithdale-------	0-13	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	13-38	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	38-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
LsE*:										
Luverne---------	0-3	7-20	1.35-1.65	2.0-6.0	0.11-0.15	3.6-5.5	Low----------	0.24	5	.5-1
	3-35	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.6-5.5	Moderate-----	0.28		
	35-43	20-40	1.35-1.65	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.28		
	43-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.28		
Smithdale-------	0-6	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	6-42	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	42-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
MIA*:										
Mantachie-------	0-5	10-20	1.30-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.37	5	1-5
	5-60	18-35	1.30-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.28		
Iuka------------	0-7	6-15	1.40-1.60	2.0-6.0	0.10-0.15	5.1-6.0	Low----------	0.24	5	1-5
	7-38	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.28		
	38-60	5-15	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.20		
Kinston---------	0-5	5-27	1.30-1.50	2.0-6.0	0.14-0.20	4.5-6.0	Low----------	0.24	5	2-5
	5-60	18-35	1.30-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.28		
MkC2------------- Maubila	0-3	8-18	1.45-1.65	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.17	4	.5-1
	3-34	20-35	1.40-1.60	0.2-0.6	0.10-0.15	3.6-5.5	Moderate-----	0.28		
	34-52	35-55	1.40-1.60	0.06-0.2	0.12-0.18	3.6-5.5	Moderate-----	0.32		
	52-80	20-60	1.40-1.60	<0.06	0.05-0.10	3.6-5.5	Moderate-----	0.32		
MsE*:										
Maubila---------	0-4	8-18	1.45-1.65	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.17	4	.5-1
	4-35	20-35	1.40-1.60	0.2-0.6	0.10-0.15	3.6-5.5	Moderate-----	0.28		
	35-65	20-60	1.40-1.60	<0.06	0.05-0.10	3.6-5.5	Moderate-----	0.32		
Smithdale-------	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
	3-33	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	33-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
MtA-------------- Minter	0-4	27-35	1.40-1.60	0.06-0.2	0.11-0.19	4.5-5.5	Moderate-----	0.32	5	2-5
	4-60	35-50	1.35-1.65	0.06-0.2	0.08-0.18	4.5-5.5	Moderate-----	0.32		
MyA-------------- Myatt	0-11	7-20	1.30-1.60	0.6-2.0	0.11-0.20	4.5-6.0	Low----------	0.28	5	.5-4
	11-23	18-35	1.30-1.50	0.2-2.0	0.12-0.20	3.6-5.5	Low----------	0.28		
	23-65	7-30	1.30-1.50	0.2-2.0	0.10-0.20	3.6-5.5	Low----------	0.24		

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
OaA-------------- Ochlockonee	0-9	3-18	1.40-1.60	2.0-6.0	0.07-0.14	4.5-6.5	Low----------	0.20	5	.5-2
	9-65	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low----------	0.17		
ObB*:										
Ochlockonee-----	0-4	3-18	1.40-1.60	2.0-6.0	0.07-0.14	4.5-6.5	Low----------	0.20	5	.5-2
	4-32	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.20		
	32-60	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low----------	0.17		
Riverview-------	0-10	10-27	1.30-1.60	0.6-2.0	0.16-0.24	4.5-6.5	Low----------	0.32	5	.5-2
	10-35	18-35	1.20-1.40	0.6-2.0	0.15-0.22	4.5-6.0	Low----------	0.24		
	35-60	4-18	1.20-1.50	2.0-6.0	0.07-0.11	4.5-6.0	Low----------	0.17		
OcB*:										
Ocilla----------	0-26	4-10	1.45-1.65	2.0-20	0.05-0.08	4.5-5.5	Low----------	0.10	5	1-2
	26-58	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
	58-65	15-40	1.55-1.70	0.2-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
Jedburg---------	0-14	10-18	1.40-1.50	2.0-6.0	0.11-0.17	4.5-6.0	Low----------	0.32	5	1-3
	14-65	18-30	1.30-1.40	0.2-0.6	0.15-0.22	4.5-6.0	Low----------	0.28		
OkB-------------- Okolona	0-6	27-50	1.30-1.50	<0.06	0.20-0.22	6.6-8.4	High---------	0.37	5	1-4
	6-60	40-55	1.30-1.50	<0.06	0.18-0.20	6.6-8.4	Very high----	0.32		
OtC-------------- Oktibbeha	0-5	27-40	1.10-1.40	0.00-0.06	0.12-0.16	4.5-7.3	High---------	0.32	5	1-3
	5-60	60-80	1.00-1.30	0.00-0.06	0.12-0.16	3.5-6.5	Very high----	0.32		
	60-75	50-70	1.10-1.40	0.00-0.06	0.05-0.10	6.6-8.4	Very high----	0.32		
Pt*-------------- Pits	0-60	---	---	---	---	---	-------------	----	---	---
SaD-------------- Saffell	0-5	5-20	1.35-1.60	2.0-6.0	0.07-0.17	4.5-5.5	Low----------	0.20	5	1-2
	5-10	10-35	1.35-1.60	0.6-2.0	0.06-0.15	4.5-5.5	Low----------	0.28		
	10-42	12-35	1.35-1.60	0.6-2.0	0.06-0.12	4.5-5.5	Low----------	0.28		
	42-60	10-25	1.40-1.65	0.6-6.0	0.04-0.11	4.5-5.5	Low----------	0.17		
SbB*:										
Saffell---------	0-6	5-15	1.35-1.60	2.0-6.0	0.05-0.13	4.5-5.5	Low----------	0.15	5	1-2
	6-44	12-35	1.35-1.60	0.6-2.0	0.06-0.12	4.5-5.5	Low----------	0.28		
	44-65	8-25	1.40-1.65	0.6-6.0	0.04-0.11	4.5-5.5	Low----------	0.17		
Maubila---------	0-2	8-18	1.45-1.65	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.17	4	.5-1
	2-52	35-55	1.40-1.60	0.06-0.2	0.12-0.18	3.6-5.5	Moderate-----	0.32		
	52-65	20-60	1.40-1.60	<0.06	0.05-0.10	3.6-5.5	Moderate-----	0.32		
ScB-------------- Smithdale	0-11	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	11-51	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	51-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
ScD-------------- Smithdale	0-10	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	10-42	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	42-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
SdA-------------- Subran	0-6	8-18	1.40-1.65	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.20	5	1-4
	6-33	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	33-75	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
SdB-------------- Subran	0-5	18-35	1.35-1.60	0.2-0.6	0.12-0.18	4.5-6.5	Moderate-----	0.24	5	1-4
	5-22	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28		
	22-75	35-55	1.40-1.65	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	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
SeA-------------- Sucarnoochee	0-16	40-60	1.20-1.50	0.06-0.2	0.14-0.20	6.6-8.4	High---------	0.32	5	2-7
	16-54	40-60	1.00-1.30	<0.06	0.14-0.18	6.6-8.4	High---------	0.32		
	54-60	45-70	1.00-1.30	<0.06	0.12-0.18	6.6-8.4	High---------	0.32		
SfB-------------- Suffolk	0-16	6-18	1.35-1.45	2.0-6.0	0.10-0.16	3.6-6.0	Low----------	0.20	5	.5-2
	16-53	10-33	1.40-1.50	0.6-2.0	0.10-0.15	3.6-6.0	Low----------	0.24		
	53-65	4-10	1.40-1.50	2.0-20	0.04-0.10	3.6-6.0	Low----------	0.15		
SmB-------------- Sumter	0-7	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	2	2-5
	7-30	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	30-80	---	---	0.00-0.01	---	---	-------------	----		
SnD2------------- Sumter	0-4	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	2	2-5
	4-28	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	28-80	---	---	0.00-0.01	---	---	-------------	----		
SoB2*:										
Sumter----------	0-6	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	2	2-5
	6-38	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	38-80	---	---	0.00-0.01	---	---	-------------	----		
Oktibbeha-------	0-4	40-60	1.10-1.40	0.00-0.06	0.12-0.16	4.5-7.3	High---------	0.32	5	1-4
	4-56	60-80	1.00-1.30	0.00-0.06	0.12-0.16	3.5-5.5	Very high----	0.32		
	56-65	50-70	1.10-1.40	0.00-0.06	0.05-0.10	6.6-8.4	Very high----	0.32		
SoD2*:										
Sumter----------	0-3	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.6-8.4	High---------	0.37	2	2-5
	3-18	35-57	1.15-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High---------	0.37		
	18-34	35-57	1.15-1.50	0.06-2.0	0.11-0.16	7.4-8.4	Moderate-----	0.32		
	34-80	---	---	0.00-0.01	---	---	-------------	----		
Oktibbeha-------	0-3	40-60	1.10-1.40	0.00-0.06	0.12-0.16	4.5-7.3	High---------	0.32	5	1-4
	3-35	60-80	1.00-1.30	0.00-0.06	0.12-0.16	3.5-5.5	Very high----	0.32		
	35-60	50-70	1.10-1.40	0.00-0.06	0.05-0.10	6.6-8.4	Very high----	0.32		
VaA-------------- Vaiden	0-6	40-60	1.10-1.40	0.06-0.2	0.10-0.15	4.5-6.5	High---------	0.32	5	1-5
	6-23	60-75	1.00-1.30	<0.06	0.10-0.15	4.5-6.5	Very high----	0.32		
	23-72	40-75	1.10-1.40	<0.06	0.10-0.15	6.6-8.4	Very high----	0.32		
VaB-------------- Vaiden	0-5	40-60	1.10-1.40	0.06-0.2	0.10-0.15	4.5-6.5	High---------	0.32	5	1-5
	5-21	60-75	1.00-1.30	<0.06	0.10-0.15	4.5-6.5	Very high----	0.32		
	21-60	40-75	1.10-1.40	<0.06	0.10-0.15	6.6-8.4	Very high----	0.32		

* 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	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
AnA: Annemaine	C	Rare	---	Jan-Mar	1.5-2.5	Apparent	Jan-Apr	>60	---	High	High.
BaA, BaB: Bama	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
CaA, CaB: Cahaba	B	Rare	---	Jan-Mar	>6.0	---	---	>60	---	Moderate	Moderate.
DsD2*:											
Demopolis	C	None	---	---	>6.0	---	---	10-20	Soft	Moderate	Low.
Sumter	C	None	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
DwB*:											
Demopolis	C	None	---	---	>6.0	---	---	10-20	Soft	Moderate	Low.
Watsonia	D	None	---	---	>6.0	---	---	10-20	Soft	High	High.
EnA: Eunola	C	Rare	---	Jan-Mar	1.5-2.5	Apparent	Jan-Apr	>60	---	Low	High.
EtA: Eutaw	D	None	---	---	0.5-1.5	Perched	Jan-Apr	>60	---	High	Moderate.
FuA: Fluvaquents	D	Frequent	Brief	Jan-Mar	+2-1.0	Apparent	Jan-Dec	>60	---	High	High.
GrA, GrB: Greenville	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
KpB: Kipling	D	None	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	High	High.
LnB: Luverne	C	None	---	---	>6.0	---	---	>60	---	High	High.
LsD*, LsE*:											
Luverne	C	None	---	---	>6.0	---	---	>60	---	High	High.
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
MIA*:											
Mantachie	C	Frequent	Brief	Jan-Mar	1.0-1.5	Apparent	Dec-Apr	>60	---	High	High.
Iuka	C	Frequent	Brief	Jan-Mar	1.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
Kinston	D	Frequent	Brief	Jan-Mar	0.0-1.0	Apparent	Dec-Apr	>60	---	High	High.
MkC2: Maubila	C	None	---	---	2.0-3.5	Perched	Jan-Apr	>60	---	High	High.
MsE*:											
Maubila	C	None	---	---	2.0-3.5	Perched	Jan-Apr	>60	---	High	High.

See footnote at end of table.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
MsE*:											
Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
MtA: Minter	D	Frequent	Brief	Jan-Mar	+3-1.0	Apparent	Jan-Dec	>60	---	High	High.
MyA: Myatt	D	Rare	---	Jan-Mar	0-1.0	Apparent	Jan-Apr	>60	---	High	High.
OaA: Ochlockonee	B	Occasional	Brief	Jan-Mar	3.0-5.0	Apparent	Jan-Apr	>60	---	Low	High.
ObB*:											
Ochlockonee	B	Frequent	Brief	Jan-Mar	3.0-5.0	Apparent	Jan-Apr	>60	---	Low	High.
Riverview	B	Frequent	Brief	Jan-Mar	3.0-5.0	Apparent	Jan-Apr	>60	---	Low	Moderate.
OcB*:											
Ocilla	C	None	---	---	1.0-2.5	Apparent	Jan-Apr	>60	---	High	Moderate.
Jedburg	C	None	---	---	0.5-1.5	Apparent	Jan-Apr	>60	---	High	High.
OkB: Okolona	D	None	---	---	4.0-6.0	Perched	Jan-Apr	>60	---	High	Moderate.
OtC: Oktibbeha	D	None	---	---	>6.0	---	---	>60	---	High	High.
Pt*: Pits	-	None	---	---	>6.0	---	---	>60	---	---	---
SaD: Saffell	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
SbB*:											
Saffell	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
Maubila	C	None	---	---	2.0-3.5	Perched	Jan-Apr	>60	---	High	High.
ScB, ScD: Smithdale	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
SdA, SdB: Subran	C	None	---	---	2.0-3.5	Perched	Jan-Apr	>60	---	High	High.
SeA: Sucarnoochee	D	Frequent	Brief	Jan-Mar	0.5-1.5	Perched	Jan-Apr	>60	---	High	Low.
SfB: Suffolk	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
SmB, SnD2: Sumter	C	None	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
SoB2*, SoD2*:											
Sumter	C	None	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
SoB2*, SoD2*:											
Oktibbeha	D	None	---	---	>6.0	---	---	>60	---	High	High.
VaA, VaB: Vaiden	D	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High	High.

* 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				
Annemaine [1]:					
(S86AL-105-4)	0-5	Ap	19	59	22
	5-18	Bt1	5	54	41
	18-37	Bt2	4	62	34
	37-42	BC	17	55	28
	42-58	C1	51	30	19
	58-75	C2	70	16	14
Bama [1]:					
(S88AL-105-3)	0-6	Ap	64	24	12
	6-14	Bt1	43	23	34
	14-26	Bt2	46	21	33
	26-37	Bt3	49	19	32
	37-54	Bt4	52	17	31
	54-65	Bt5	52	15	33
Cahaba [1]:					
(S86AL-105-1)	0-9	Ap	71	18	11
	9-15	BA	60	20	20
	15-45	Bt	56	20	24
	45-65	C	73	13	14
Greenville [2]:					
(S61AL-53-2)	0-5	Ap	41	38	21
	5-15	Bt1	35	24	41
	15-23	Bt2	43	20	37
	23-33	Bt3	31	22	47
	33-47	Bt4	34	23	43
	47-59	Bt5	35	20	45
	59-71	Bt6	36	19	45
Maubila [1]:					
(S89AL-105-5)	0-3	Ap	51	37	12
	3-9	Bt1	34	27	39
	9-21	Bt2	27	27	46
	21-34	Bt3	41	19	40
	34-52	BC	41	24	35
	52-80	C	31	22	47
Myatt [1]:					
(S86AL-105-5)	0-6	Ap	70	22	8
	6-11	Eg	64	24	12
	11-23	Btg1	58	23	19
	23-46	Btg2	53	23	24
	46-65	Cg	55	19	26
Ocilla [1]:					
(S89AL-105-2)	0-6	Ap	82	15	3
	6-14	E1	80	17	3
	14-26	E2	81	16	3
	26-37	Bt1	66	16	18
	37-58	Bt2	61	17	22
	58-65	Bt3	69	13	17
Okolona [1]:					
(S86AL-105-6)	0-6	Ap	5	62	33
	6-22	A1	3	46	51
	22-27	A2	3	40	57
	27-33	Bkss1	3	36	61
	33-60	Bkss2	5	36	59

See footnotes at end of table.

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				
Subran [3]:					
(S86AL-105-3)	0-6	Ap	47	38	15
	6-11	Bt	29	37	34
	11-23	Btc1	31	33	36
	23-38	Btc2	29	29	42
	38-48	Btc3	19	25	56
	48-70	B't	16	25	59
Subran [1]:					
(S87AL-105-4)	0-6	Ap	58	31	11
	6-13	Bt	33	35	32
	13-22	Btc1	30	32	38
	22-33	Btc2	26	35	39
	33-45	Btc3	21	35	44
	45-65	B't	19	37	44
Subran [4]:					
(S87AL-105-5)	0-6	Ap	60	27	13
	6-12	Bt	31	33	36
	12-21	Btc1	32	31	37
	21-36	Btc2	27	29	44
	36-50	Btc3	28	31	41
	50-65	B't	24	32	44
Vaiden [1]:					
(S87AL-105-1)	0-6	Ap	10	39	51
	6-12	Btss1	4	28	68
	12-23	Btss2	4	27	69
	23-40	Bss1	5	33	62
	40-58	Bss2	4	48	48
	58-72	Bkss	6	52	42

[1] This is the typical pedon for the series in Perry County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

[2] This pedon is in an area of Greenville loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 160 feet southeast of State Highway 5, in the NW1/4, SE1/4 of sec. 13, T. 19 N., R. 7 E.

[3] This pedon is in an area of Subran loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 2,000 feet south and 1,190 feet west of the northeast corner of sec. 11, T. 19 N., R. 6 E.

[4] This pedon is in an area of Subran loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 560 feet south and 900 feet west of the northeast corner of sec. 28, T. 19 N., R. 7 E.

Table 19.--Chemical Analyses of Selected Soils

Soil name and sample number	Depth	Horizon	Extractable bases				Extractable acidity	Base saturation	Reaction	Cation-exchange capacity
			Ca	Mg	K	Na				
	In		----------Meq 100g----------					Pct	pH	--Meq 100 g--
Annemaine [1]:										
(S86AL-105-4)	0-5	Ap	4.84	1.90	0.50	0.12	0.14	74	5.5	10.3
	5-18	Bt1	2.02	1.52	0.13	0.14	5.64	42	5.0	13.9
	18-37	Bt2	0.35	1.63	0.08	0.14	7.27	23	5.0	12.1
	37-42	BC	0.25	1.63	0.08	0.17	6.75	27	4.9	11.1
	42-58	C1	0.20	1.22	0.06	0.19	4.84	26	4.9	7.5
	58-75	C2	0.20	0.00	0.06	0.19	3.45	9	4.8	5.2
Bama [1]:										
(S88AL-105-3)	0-6	Ap	1.37	0.69	0.23	0.08	0.38	52	5.6	5.9
	6-14	Bt1	2.36	1.36	0.28	0.10	0.02	62	6.5	8.2
	14-26	Bt2	1.42	0.73	0.17	0.09	1.32	37	5.1	6.9
	26-37	Bt3	0.29	0.48	0.12	0.09	2.61	17	4.7	6.8
	37-54	Bt4	0.10	0.40	0.12	0.09	2.84	13	4.5	6.6
	54-75	Bt5	0.05	0.35	0.12	0.09	3.15	11	4.5	6.7
Cahaba [1]:										
(S86AL-105-1)	0-9	Ap	2.42	0.58	0.26	0.07	0.06	61	5.8	4.2
	9-15	BA	1.47	0.52	0.07	0.07	0.78	41	5.0	4.4
	15-45	Bt	1.35	0.37	0.07	0.07	2.00	28	4.6	5.2
	45-65	C	0.70	0.15	0.05	0.10	1.56	23	4.5	3.0
Greenville [2]:										
(S61AL-53-2)	0-5	Ap	5.8	1.5	0.8	0.1	2.8	74	6.4	8.7
	5-15	Bt1	6.3	1.8	0.5	0.1	5.4	62	5.7	10.3
	15-23	Bt2	6.2	1.8	0.2	0.1	5.8	59	6.0	10.2
	23-33	Bt3	5.2	1.8	0.2	0.1	4.9	60	6.0	8.3
	33-47	Bt4	4.0	1.9	0.2	0.1	4.7	57	6.1	8.0
	47-59	Bt5	3.2	2.4	0.2	0.1	6.7	47	5.3	8.3
	59-71	Bt6	1.7	1.7	0.2	0.1	7.7	32	4.6	7.7
Maubila [1]:										
(S89AL-105-5)	0-3	Ap	0.02	0.19	0.04	0.10	1.45	11	4.7	3.3
	3-9	Bt1	0.05	0.33	0.05	0.13	3.98	11	4.8	7.5
	9-21	Bt2	0.30	0.33	0.06	0.14	6.40	11	5.0	10.2
	21-34	Bt3	0.07	0.15	0.04	0.11	7.22	5	4.8	10.0
	34-52	BC	0.03	0.16	0.03	0.12	8.48	5	4.6	10.2
	52-80	C	0.02	0.15	0.18	0.19	11.25	6	4.7	14.3
Myatt [1]:										
(S86AL-105-5)	0-6	Ap	1.00	0.28	0.16	0.17	2.38	30	4.2	6.5
	6-11	Eg	0.32	0.17	0.04	0.14	3.75	13	4.6	4.9
	11-23	Btg1	0.17	0.20	0.04	0.12	6.76	7	4.5	8.1
	23-46	Btg2	0.20	0.26	0.06	0.12	9.59	6	4.5	9.7
	46-65	Cg	0.30	0.47	0.06	0.10	11.80	6	4.4	13.6
Ocilla [1]:										
(S89AL-105-2)	0-6	A	0.31	0.16	0.10	0.11	0.66	16	4.9	2.3
	6-14	E1	0.36	0.18	0.14	0.10	0.13	19	5.9	1.3
	14-26	E2	0.52	0.23	0.12	0.12	0.02	33	5.8	1.1
	26-37	Bt1	1.99	0.84	0.15	0.13	1.37	45	5.2	6.9
	37-58	Bt2	1.25	0.66	0.11	0.14	3.83	24	5.0	8.3
	58-65	Bt3	0.37	0.39	0.10	0.14	5.02	12	4.7	6.9
Okolona [1]:										
(S86AL-105-6)	0-6	Ap	33.03	0.73	0.19	0.14	0.03	94	7.1	44.6
	6-22	A1	31.24	0.19	0.07	0.16	0.02	92	7.5	45.0
	22-27	A2	30.46	0.18	0.07	0.16	0.03	92	7.6	44.8
	27-33	Bkss1	30.96	0.21	0.07	0.24	0.02	94	7.7	44.4
	33-60	Bkss2	35.68	0.23	0.05	0.28	0.05	95	7.9	34.6

See footnotes at end of table.

Table 19.--Chemical Analyses Of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Extractable bases				Extractable acidity	Base saturation	Reaction	Cation-exchange capacity
			Ca	Mg	K	Na				
	In		----------Meq 100g-----------					Pct	pH	--Meq 100 g--
Subran [3]:										
(S86AL-105-3)	0-6	Ap	3.67	1.51	0.15	0.12	0.09	70	6.1	7.4
	6-11	Bt	5.26	1.54	0.06	0.12	0.05	70	6.3	8.0
	11-23	Btc1	6.64	1.59	0.07	0.10	0.09	68	6.2	13.3
	23-38	Btc2	5.49	1.92	0.07	0.12	0.09	64	6.1	14.4
	38-48	Btc3	3.59	2.68	0.18	0.12	5.01	45	4.9	21.0
	48-70	B't	2.40	2.67	0.26	0.12	11.03	33	4.6	23.3
Subran [1]:										
(S87AL-105-4)	0-6	Ap	4.1	1.4	0.2	0.1	2.0	74	6.5	6.4
	6-11	Bt	6.5	2.1	0.1	0.1	7.7	53	5.6	13.5
	11-23	Btc1	3.7	2.3	0.1	0.1	11.7	35	4.9	13.8
	23-38	Btc2	1.9	2.8	0.1	0.1	12.5	28	4.9	14.7
	38-48	Btc3	1.2	2.6	0.1	0.1	15.4	21	4.9	17.0
	48-70	B't	0.9	2.3	0.1	0.1	17.3	16	4.7	18.8
Subran [4]:										
(S87AL-105-5)	0-6	Ap	4.3	1.3	0.4	TR	5.8	51	5.5	9.5
	6-11	Bt	6.8	3.3	0.2	0.1	4.5	70	6.6	11.9
	11-23	Btc1	4.5	2.7	0.1	TR	11.0	40	5.0	14.1
	23-38	Btc2	1.0	2.2	0.1	0.1	15.4	18	4.4	15.7
	38-48	Btc3	0.3	1.6	0.1	0.1	16.0	12	4.5	15.6
	48-70	B't	0.3	1.4	0.1	0.1	16.4	10	4.5	16.8
Vaiden [1]:										
(S87AL-105-1)	0-6	Ap	28.61	1.82	0.39	0.04	0.04	91	6.7	33.8
	6-12	Btss1	26.94	1.64	0.24	0.07	3.18	86	4.8	39.4
	12-23	Btss2	22.29	1.05	0.19	0.08	8.92	83	4.6	39.3
	23-40	Bss1	20.23	0.81	0.18	0.12	7.38	79	4.5	35.5
	40-58	Bss2	38.76	0.91	0.35	0.18	0.02	94	6.9	40.9
	58-72	Bkss	44.15	0.87	0.35	0.22	0.00	95	7.9	39.9

[1] This is the typical pedon for the series in Perry County. For the description and location of the pedon,see the section "Soil Series and Their Morphology."

[2] This pedon is in an area of Greenville loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 160 feet southeast of State Highway 5, in the NW1/4, SE1/4 of sec. 13, T. 19 N., R. 7 E.

[3] This pedon is in an area of Subran loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 2,000 feet south and 1,190 feet west of the northeast corner of sec. 11, T. 19 N., R. 6 E.

[4] This pedon is in an area of Subran loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is about 560 feet south and 900 feet west of the northeast corner of sec. 28, T. 19 N., R. 7 E.

Table 20.--Engineering Index Test Data

(Dashes indicate that data were not available. LL means liquid limit; MD, maximum dry density; OM, optimum moisture; and NP, nonplastic)

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution: Percentage passing sieve--				LL	PI	Moisture density	
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200			MD	OM
							Pct		Lb/ cu ft	Pct
Annemaine*:										
(S86AL-105-4)										
Bt1----- 5 to 18	A-7-6(20)	ML	100	100	100	98	46	17	97	23
Bt2----- 18 to 37	A-7-5(15)	ML	100	100	100	98	43	13	98	20
C1------ 42 to 58	A-4(2)	ML	100	100	99	70	29	6	110	13
C2------ 58 to 75	A-4(0)	SM	100	100	100	39	---	NP	110	14
Cahaba*:										
(S86AL-105-1)										
Ap------ 0 to 9	A-2-4(0)	SM	99	99	86	29	---	NP	121	10
Bt------ 15 to 45	A-4(0)	SC-SM	99	99	80	44	24	4	113	16
C------- 45 to 65	A-2-4(0)	SM	99	99	87	32	18	1	120	10
Myatt*:										
(S86AL-105-5)										
Btg1---- 11 to 23	A-4(0)	SC-SM	100	100	99	45	21	4	113	12
Btg2---- 23 to 46	A-4(0)	SC-SM	100	100	99	47	25	7	113	13
Cg------ 46 to 65	A-4(6)	CL-ML	100	99	99	97	28	7	111	13
Okolona*:										
(S86AL-105-6)										
A1------ 6 to 22	A-7-5(34)	MH	99	95	99	98	63	29	85	25
Bkss2--- 33 to 60	A-7-6(35)	CH	98	96	96	93	61	34	94	21
Subran**:										
(S86AL-105-3)										
Btc1---- 11 to 23	A-6(11)	CL	100	100	93	71	40	17	99	19
Btc2---- 23 to 38	A-7-6(7)	CL	100	100	95	56	42	18	94	20
Btc3---- 38 to 48	A-7-5(16)	MH	100	99	96	81	48	17	95	25
B't----- 48 to 70	A-7-5(19)	MH	100	100	98	86	53	18	96	23

* This is the typical pedon for the series in Perry County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

** This pedon is in an area of Subran loam, 0 to 2 percent slopes. It is not the typical pedon for the map unit. It is 2,000 feet south and 1,190 feet west of the northeast corner of sec. 11, T. 19 N., R. 6 E.

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Annemaine	Fine, mixed, semiactive, thermic Aquic Hapludults
Bama	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Cahaba	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Demopolis	Loamy, carbonatic, thermic, shallow Typic Udorthents
Eunola	Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults
Eutaw	Very-fine, smectitic, thermic Chromic Dystraquerts
Fluvaquents	Typic Fluvaquents
Greenville	Fine, kaolinitic, thermic Rhodic Kandiudults
Iuka	Coarse-loamy, siliceous, active, acid, thermic Aquic Udifluvents
Jedburg	Fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults
Kinston	Fine-loamy, siliceous, semiactive, acid, thermic Typic Fluvaquents
Kipling	Fine, smectitic, thermic Vertic Paleudalfs
Luverne	Fine, mixed, semiactive, thermic Typic Hapludults
Mantachie	Fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts
Maubila	Fine, mixed, subactive, thermic Aquic Hapludults
Minter	Fine, mixed, semiactive, thermic Typic Endoaqualfs
Myatt	Fine-loamy, siliceous, active, thermic Typic Endoaquults
Ochlockonee	Coarse-loamy, siliceous, active, acid, thermic Typic Udifluvents
Ocilla	Loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults
Okolona	Fine, smectitic, thermic Oxyaquic Hapluderts
Oktibbeha	Very-fine, smectitic, thermic Chromic Dystruderts
Riverview	Fine-loamy, mixed, active, thermic Fluventic Dystrochrepts
Saffell	Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults
Smithdale	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Subran	Fine, mixed, semiactive, thermic Aquic Paleudults
Sucarnoochee	Fine, smectitic, thermic Chromic Epiaquerts
Suffolk	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrochrepts
Vaiden	Very-fine, smectitic, thermic Aquic Dystruderts
Watsonia	Clayey, smectitic, thermic Leptic Hapluderts

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