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 Macon County, Alabama

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, 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.

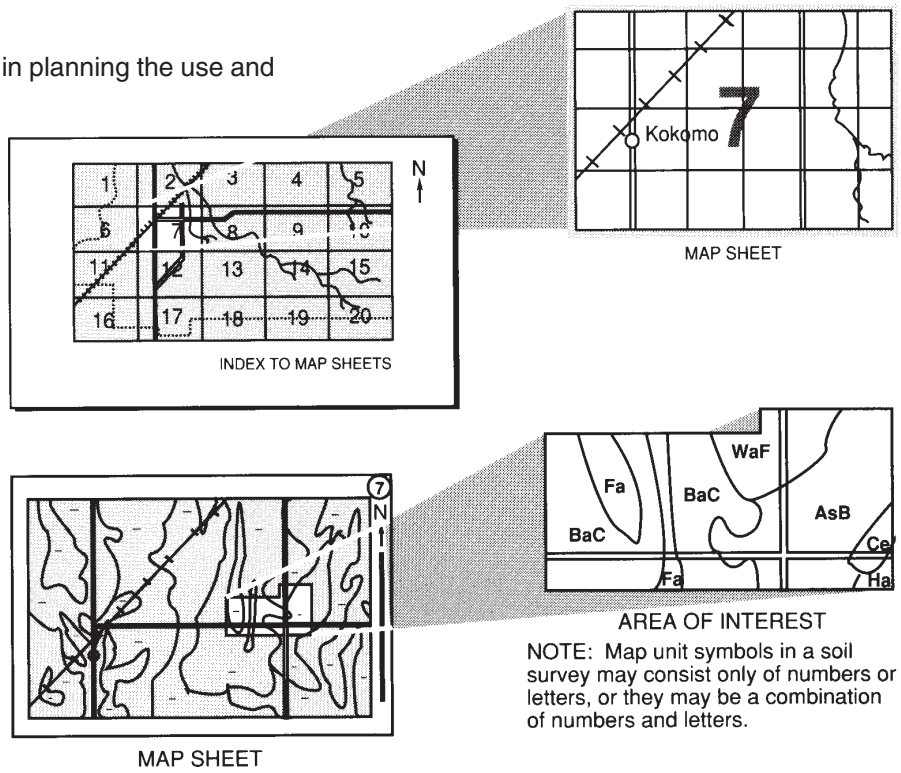
Detailed Soil Maps

The detailed soil maps 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**. Note the number of the map sheet and turn to that sheet.

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

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



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

Major fieldwork for this soil survey was completed in 1998. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1998. This survey was made cooperatively by the Natural Resources Conservation Service, the Alabama Agricultural Experiment Station, the Alabama Cooperative Extension System, the Alabama Soil and Water Conservation Committee, the Alabama Department of Agriculture and Industries, the Macon County Commission, and Tuskegee University. It is part of the technical assistance furnished to the Macon County Soil and Water Conservation District. The USDA-Forest Service provided financial assistance for the part of the survey in Tuskegee National Forest.

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

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Cover: Cotton growing in an area of Red Bay sandy loam, 0 to 2 percent slopes. This soil is prime farmland and is well suited to cultivated crops, hay, and pasture.

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

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Foreword

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

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

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

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

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

Robert N. Jones
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Macon County, Alabama

By James M. Mason, Natural Resources Conservation Service

Fieldwork by James M. Mason, Rex H. Chandler, Richard Corley, Malcomb Kirkland, Cleo Stubbs, Johnny C. Trayvick, and Christie L. White, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Alabama Agricultural Experiment Station, the Alabama Cooperative Extension System, the Alabama Soil and Water Conservation Committee, the Alabama Department of Agriculture and Industries, the Macon County Commission, Tuskegee University, and the USDA–Forest Service

MACON COUNTY is located in east-central Alabama (fig. 1). The total area of the county, including areas of water, is 392,830 acres, or about 614 square miles. Macon County is bounded on the west by Montgomery County, on the northwest by Elmore County, on the north by Tallapoosa County, on the northeast by Lee County, on the east by Russell County, and on the south by Bullock County. In 1990, the population of Macon County was 24,928 (ADECA, 1990). Tuskegee, the largest city and the county seat, had a population of 12,257 (ADECA, 1990). The incorporated cities of Notasulga, Franklin, and Shorter are among the many smaller communities in the county.

The Tuskegee Institute National Historic Site, located on the campus of Tuskegee University, became a part of the National Park System in 1974. African-American history, early industrial development, civil rights, and education are some of the themes represented at the site. The 11,070-acre Tuskegee National Forest, which is managed by the USDA–Forest Service to improve the area's recreational opportunities, wildlife, water quality, and timber resources, is one of Alabama's four national forests and is the smallest in the nation. Although small in size, it offers the outdoor enthusiast facilities for hiking, wildlife viewing, picnicking, camping, hunting, and fishing.

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

Figure 1.—Location of Macon County in Alabama.

Macon County includes portions of three Major Land Resource Areas: the Southern Piedmont; the Southern Coastal Plain; and the Alabama, Mississippi, and Arkansas Blackland Prairies. Elevation ranges from about 570 feet above sea level at Liberty City in the northern part of the county to about 170 feet above sea level near the mouth of Line Creek in the western part of the county.

The major highways providing access through Macon County include Interstate Highway 85 and U.S. Highway 80, which run east to west, and U.S. Highway 29, which runs north to south. Several state highways and numerous county roads serve the remainder of the county.

This soil survey updates an earlier survey of Macon County published in 1944 (Lounsbury and others, 1944). It provides additional information and larger maps, which show the soils in greater detail.

General Nature of the County

This section provides general information about the county. It gives a brief description of the history, natural resources, geology, farming, and climate.

History

The area that is now Macon County was part of the lands ceded by the Creek Indian Nation. In 1832, after the defeat of the Creek Indians at Horseshoe Bend and the passage of the Indian Removal Act, Macon County was created by an act of the Alabama Legislature. It was named in honor of Nathaniel Macon, a distinguished soldier from North Carolina. Tuskegee was incorporated and authorized as the county seat in 1833. Indians and settlers coexisted in the county for many years until the last of the Indians were removed in 1836.

In 1866, another act of the Alabama Legislature took lands from northeastern and southern parts of Macon County for the creation of Lee and Bullock Counties, respectively. Because of the settled areas to the east and west, land speculation boomed and settlements sprang up quickly. Settlers came largely from Georgia, the Carolinas, and Tennessee. Some of the early settlements were Cotton Valley, Cross Keys, Franklin, Hunnicutt, Little Texas, Notasulga, Society Hill, Tuskegee, and Warriorstand (Tuskegee University Extension Service, 1993; Yamaguchi, 1981).

Tuskegee, the largest town and main business center, is centrally located in the county. It is about 40 miles east of Montgomery, Alabama, and 42 miles west of Columbus, Georgia. Macon County is served by 574 miles of county roads, 130 miles of state roads, and 80 miles of federally-maintained roads (ADECA, 1990). Adjacent to the city of Tuskegee is Tuskegee University, formerly Tuskegee Normal and Industrial Institute. Tuskegee University in nationally known for leadership in promoting African-American education and culture (Yamaguchi, 1981).

Farming, the main economic enterprise in the county, flourished during the antebellum “Plantation Era.” Cotton was the chief crop. As cotton production declined, the farm economy suffered, prompting a shift toward cattle and timber production. This shift in land use brought about a population decline. In spite of this decline, however, Macon County remains an agricultural county and now has a fairly steady population. The population was 24,841 in 1970 and 24,928 in 1990 (Consolidated Farm Service Agency, 1995).

Natural Resources

Soil is one of the most important natural resources in the county. The cattle that graze the pastures, the crops that are produced on the farms, and the timber and pulpwood that are produced in the forestlands are all marketable products that come from the soil. Sand, gravel, and, to a lesser extent, topsoil are mined along the Tallapoosa River and some of its major tributaries and are of major economic value (fig. 2).

Macon County has an adequate water supply for domestic and livestock use. The county is drained by several large creeks and their tributaries. Most of these creeks flow west and north and empty into the Tallapoosa River. A few in the southeast corner of the county flow south and east and empty into the Chattahoochee River. Most of the water for domestic use is drawn from wells by both large and small pumping systems. Many lakes and ponds are scattered throughout the county. These water areas are used for livestock, wildlife enhancement and habitat, and recreation.

About 288,800 acres, or 74 percent of the total land area in Macon County, is forestland (Macon County SWCD, 1980). Timber production is mainly in the northeastern, eastern, and central parts of the county. The soils in these areas are generally well suited to pine trees. Many acres of cropland and pastureland have been converted to timber production by individual landowners and commercial timber producers. The soils in the southwestern and southern parts of the county, particularly south of Cotton Valley, generally are less well suited to the production of pine trees.

Figure 2.—A sand and gravel pit in an area of Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded.

Geology

The three Major Land Resource Areas (MLRAs) in Macon County are the Southern Piedmont; the Alabama, Mississippi, and Arkansas Blackland Prairie; and the Southern Coastal Plain.

Soils of the Southern Piedmont are in the northernmost tip of the county. These soils formed in granites, gneisses, and schists of the Opelika and Dadeville Complex. This area of the Southern Piedmont is highly dissected and has narrow ridges and steep side slopes.

Soils of the Alabama, Mississippi, and Arkansas Blackland Prairies are across the southern part of the county. These soils formed in materials weathered from alkaline clay, chalk, and marl of the Mooreville Chalk and Blufftown Formations. This area consists of a network of low hills and irregular ridges with narrow, v-shaped valleys.

Soils of the Southern Coastal Plain are across the northern and central parts of the county. These soils formed in unconsolidated sands and clays of the Tuscaloosa Group and Eutaw Formation. This area is moderately to highly dissected by a dendritic pattern of streams and has ridges that range from nearly level and broad to moderately sloping and narrow.

Farming

About 80,800 acres, or 20 percent of the total land area in Macon County, is used for cropland, pastureland, or hayland (Consolidated Farm Service Agency, 1995). Cotton has again become the major cultivated crop in Macon County. Some cotton farmers are planting small grains and legumes as winter cover. Smaller acreages of corn, used primarily for silage, and soybeans are also planted. Haying operations are scattered throughout the county. They produce hay for on-farm use and for sale to livestock producers. Beef-cattle production is the largest agricultural industry in the county. Specialty crops of economic significance include pecans, sod, blueberries, ornamental plants, and vegetable crops.

Climate

Macon 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 usually adequate for the growth of all crops.

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

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

In winter, the average temperature is 46 degrees F and the average daily minimum temperature is 35 degrees. The lowest temperature on record, which occurred on December 27, 1983, is 0 degrees. In summer, the average temperature is 78 degrees and the average daily maximum temperature is 89 degrees. The highest recorded temperature, which occurred on June 16, 1968, is 110 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 56 inches. Of this, 29 inches, or about 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 14 inches. The heaviest 1-day rainfall during the period of record was 5.9 inches on December 10, 1961. Thunderstorms occur on about 59 days each year, and most occur in July.

The average seasonal snowfall is about 0.6 inch. The greatest snow depth at any one time during the period of record was 14 inches on February 10, 1973. In most years, a full inch of snow is never on the ground. The annual snowfall 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, 8.3 miles per hour, in March.

How This Survey Was Made

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

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey

area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals.

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 Survey of Macon County,” published in 1944 (Lounsbury and others, 1944), and the “Geologic Map of Alabama” (Szabo and others, 1988) 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 (Johnson, 1961; Steers and Hajek, 1979). 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 for determination of 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, and the Alabama Department of Highways and Transportation, Montgomery, Alabama. The results of some of the analyses are published in this soil survey report. Unpublished analyses and the laboratory procedures can be obtained from the laboratories.

High-altitude aerial photography base maps at a scale of 1:24,000 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 soil scientists. Separate overlays of soil lines and symbols, drainage features, and cultural features were developed on stable-base mylar and each overlay was scanned and digitized. The digitized data was certified and then used to produce the maps for publication.

General Soil Map Units

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

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified. Table 4 summarizes the suitability and limitations of the general soil map units for cultivated crops, pasture, hay, woodland, and urban uses.

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.

The boundaries of the general soil map units in Macon County were matched, where possible, with those of the previously completed surveys of Bullock, Elmore, Lee, Montgomery, and Russell 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.

Areas on Flood Plains and Low Stream Terraces Dominated by Level to Gently Sloping, Loamy and Clayey Soils that are Subject to Flooding

These well drained to poorly drained soils have a loamy surface layer and a loamy or clayey subsoil or substratum. They make up about 22 percent of the county. Most of the acreage is forested and is used for woodland and wildlife habitat. A few areas are used for cultivated crops, pasture, or hay. Wetness and flooding, which limit the use of equipment and increase the seedling mortality rate, and plant competition are the main management concerns for woodland.

1. Altavista-Toccoa-Riverview

Dominantly level and gently undulating, moderately well drained and well drained soils that have a loamy surface layer and a loamy subsoil or loamy substratum; on low terraces and flood plains

Setting

Location in the survey area: Parallel to the Tallapoosa River in the western part of the county
Landscape: Coastal Plain
Landform: Altavista—low terraces; Toccoa and Riverview—flood plains
Landform position: Altavista—slightly convex slopes; Toccoa—high, convex parts of natural levees; Riverview—high and intermediate parts of natural levees
Slope: 0 to 3 percent

Composition

Percent of the survey area: 3
Altavista and similar soils: 25 percent
Toccoa and similar soils: 23 percent
Riverview and similar soils: 20 percent
Minor soils: 32 percent, including Cahaba, Dogue, Kinston, and Roanoke soils and Fluvaquents

Soil Characteristics

Altavista
Surface layer: Brown silt loam
Subsoil: Upper part—dark yellowish brown clay loam that has brownish mottles; next part—yellowish brown loam and dark yellowish brown clay loam having brownish and grayish mottles; lower part—brown loam that has grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained

Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 1/2 feet from January through March
Slope: 0 to 2 percent
Parent material: Loamy sediments
Flooding: Rare

Toccoa
Surface layer: Dark brown fine sandy loam
Subsurface layer: Dark yellowish brown fine sandy loam
Substratum: Upper part—dark yellowish brown loamy fine sand; next part—brown loam; lower part—dark yellowish brown fine sandy loam, loam, and loamy fine sand
Depth class: Very deep
Drainage class: Well drained
Seasonal high water table: Apparent, at a depth of 2 1/2 to 5 feet from January through April
Slope: 0 to 3 percent
Parent material: Loamy and sandy alluvium
Flooding: Occasional, for brief periods from December through April

Riverview
Surface layer: Brown silt loam
Subsoil: Upper part—dark yellowish brown loam; next part—brown silty clay loam; lower part—dark yellowish brown silty clay loam and fine sandy loam
Substratum: Yellowish brown loamy fine sand
Depth class: Very deep
Drainage class: Well drained
Seasonal high water table: Apparent, at a depth of 3 1/2 to 5 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy alluvium
Flooding: Occasional, for brief periods from December through April

Minor soils
- The well drained Cahaba soils on low terraces
- The clayey Dogue soils on low terraces
- The poorly drained Kinston soils and very poorly drained Fluvaquents in shallow depressions
- The poorly drained Roanoke soils on low terraces

Use and Management

Major uses: Cultivated crops, pasture, and hay

Cropland
Management concerns: Altavista—wetness; Toccoa and Riverview—flooding

Pasture and hay
Management concerns: Altavista—wetness; Toccoa and Riverview—flooding

Woodland
Management concerns: Competition from undesirable plants

Urban development
Management concerns: Flooding and wetness

2. Dogue-Kinston-Eunola

Dominantly level and nearly level, moderately well drained and poorly 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 Uphapee and Chewacla Creeks in the northern part of the county
Landscape: Coastal Plain
Landform: Dogue and Eunola—low terraces; Kinston—flood plains
Landform position: Dogue and Eunola—level and nearly level, slightly convex slopes; Kinston—flat or concave slopes on low parts of natural levees and in backswamps
Slope: 0 to 2 percent

Composition

Percent of the survey area: 5
Dogue soils: 32 percent
Kinston soils: 28 percent
Eunola soils: 25 percent
Minor soils: 15 percent, including Bigbee, Bruno, Cahaba, Mooreville, and Riverview soils and Fluvaquents

Soil Characteristics

Dogue
Surface layer: Brown fine sandy loam
Subsoil: Upper part—dark yellowish brown clay loam; next part—strong brown and dark yellowish brown clay that has brownish and grayish mottles; lower part—strong brown sandy clay loam that has reddish and grayish mottles
Substratum: Yellowish brown sandy loam that has reddish and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 3 feet from January through March
Slope: 0 to 2 percent
Parent material: Stratified clayey and loamy alluvium
Flooding: Rare

Kinston
Surface layer: Dark gray and gray fine sandy loam
Subsoil: Grayish sandy clay loam that has brownish and reddish mottles
Substratum: Light gray loamy fine sand that has brownish mottles
Depth class: Very deep
Drainage class: Poorly drained
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Slope: 0 to 1 percent
Parent material: Loamy and sandy alluvium
Flooding: Frequent, for brief periods from December through April

Eunola
Surface layer: Dark brown and brown fine sandy loam
Subsurface layer: Light yellowish brown fine sandy loam
Subsoil: Upper part—dark yellowish brown and brown sandy clay loam that has brownish and reddish mottles; next part—yellowish brown and brownish yellow sandy clay loam that has reddish and grayish mottles; lower part—mottled brownish and grayish sandy loam
Substratum: Strong brown loamy sand
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 feet from January through March
Slope: 0 to 2 percent
Parent material: Stratified loamy and sandy alluvium
Flooding: Rare

Minor soils
- The sandy Bigbee and Bruno soils on high parts of natural levees
- The well drained Cahaba soils in high, convex positions on terraces
- The very poorly drained Fluvaquents in old oxbows, sloughs, and other shallow depressions on the flood plain
- The moderately well drained Mooreville and well drained Riverview soils in intermediate positions on natural levees

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Dogue and Eunola—wetness; Kinston—flooding and wetness

Pasture and hay
Management concerns: Dogue and Eunola—wetness; Kinston—flooding and wetness

Woodland
Management concerns: Dogue and Eunola—restricted use of equipment and competition from undesirable plants; Kinston—restricted use of equipment, seedling survival, and competition from undesirable plants

Urban development
Management concerns: Flooding and wetness

3. Kinston-Mooreville-Goldsboro

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

Setting

Location in the survey area: Parallel to Calebee and Cubahatchee Creeks in the southwestern part of the county
Landscape: Coastal Plain
Landform: Kinston and Mooreville—flood plains; Goldsboro—low terraces
Landform position: Kinston—flat or concave slopes on low parts of natural levees and in backswamps; Mooreville—high, convex parts of natural levees; Goldsboro—slightly convex slopes
Slope: 0 to 2 percent

Composition

Percent of the survey area: 8
Kinston soils: 35 percent
Mooreville soils: 30 percent
Goldsboro and similar soils: 20 percent
Minor soils: 15 percent, including Cahaba, Dogue, Eunola, Lynchburg, Myatt, and Ocilla soils

Soil Characteristics

Kinston
Surface layer: Dark gray and gray fine sandy loam
Subsoil: Grayish sandy clay loam that has brownish and reddish mottles
Substratum: Light gray loamy fine sand that has brownish mottles
Depth class: Very deep
Drainage class: Poorly drained
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from December through April
Slope: 0 to 1 percent
Parent material: Loamy and sandy alluvium
Flooding: Frequent, for brief periods from December through April

Mooreville
Surface layer: Brown loam
Subsoil: Upper part—yellowish brown clay loam; next part—yellowish brown sandy clay loam that has grayish and brownish mottles; lower part—yellowish brown clay loam that has grayish mottles
Substratum: Gray sandy clay loam
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 3 feet from January through March
Slope: 0 to 1 percent
Parent material: Loamy alluvium
Flooding: Frequent, for brief periods from December through April

Goldsboro
Surface layer: Dark grayish brown loamy fine sand
Subsurface layer: Pale brown loamy fine sand
Subsoil: Upper part—light olive brown sandy clay loam that has grayish and brownish mottles; next part—light brownish gray sandy clay loam that has reddish and brownish mottles; lower part—gray sandy clay loam that has reddish and brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 2 to 3 feet from January through March
Slope: 0 to 2 percent
Parent material: Loamy sediments
Flooding: None

Minor soils
- The well drained Cahaba and moderately well drained Eunola soils on low terraces
- The clayey Dogue soils on low terraces
- The somewhat poorly drained Lynchburg and Ocilla soils on low terraces
- The poorly drained Myatt soils on low terraces

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Kinston and Mooreville—flooding and wetness; Goldsboro—wetness

Pasture and hay
Management concerns: Kinston and Mooreville—flooding and wetness; Goldsboro—wetness

Woodland
Management concerns: Kinston and Mooreville—restricted use of equipment, seedling survival, and competition from undesirable plants; Goldsboro—restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Kinston and Mooreville—flooding and wetness; Goldsboro—wetness and restricted permeability

4. Urbo-Una-Mooreville

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

Setting

Location in the survey area: Parallel to Line, Cubahatchee, Old Town, and Opintlocco Creeks in the southern part of the county
Landscape: Coastal Plain
Landform: Flood plains
Landform position: Urbo—flat or slightly concave slopes in low and intermediate positions on natural levees; Una—swales, sloughs, and other depressional areas in backswamps; Mooreville—high, convex parts of natural levees
Slope: 0 to 1 percent

Composition

Percent of the survey area: 6
Urbo soils: 30 percent
Una and similar soils: 20 percent
Mooreville soils: 20 percent
Minor soils: 30 percent, including Dogue, Goldsboro, Kinston, Lynchburg, Ocilla, and Sucarnoochee soils and Fluvaquents

Soil Characteristics

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

Una
Surface layer: Dark grayish brown silty clay loam
Subsoil: Upper part—grayish brown and gray silty clay that has brownish mottles; lower part—dark gray and olive gray clay that has brownish and reddish mottles
Depth class: Very deep
Drainage class: Poorly drained
Seasonal high water table: Perched, from 2 feet above the surface to a depth of 1/2 foot from December through April
Slope: 0 to 1 percent
Parent material: Clayey alluvium
Flooding: Frequent, for brief periods from December through April

Mooreville
Surface layer: Brown loam
Subsoil: Upper part—yellowish brown clay loam; next part—yellowish brown sandy clay loam that has grayish and brownish mottles; lower part—yellowish brown clay loam that has grayish mottles
Substratum: Gray sandy clay loam
Depth class: Very deep
Drainage class: Moderately well drained
Seasonal high water table: Apparent, at a depth of 1 1/2 to 3 feet from January through March
Slope: 0 to 1 percent
Parent material: Loamy alluvium
Flooding: Frequent, for brief periods from December through April

Minor soils
- The moderately well drained Dogue and Goldsboro soils on low terraces
- The very poorly drained Fluvaquents and poorly drained Kinston soils in low positions in backswamps
- The somewhat poorly drained Lynchburg and Ocilla soils on low terraces
- The alkaline, somewhat poorly drained Sucarnoochee soils in low positions in backswamps

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Flooding and wetness

Pasture and hay
Management concerns: Flooding and wetness

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

Urban development
Management concerns: Flooding and wetness

Areas on Uplands Dominated by Nearly Level to Steep, Loamy, Sandy, and Clayey Soils

These somewhat excessively drained to moderately well drained soils are loamy or sandy throughout; have thick, sandy surface and subsurface layers and a loamy subsoil; or have a loamy surface layer and a clayey subsoil. They make up about 63 percent of the county. Most of the acreage is forested and is used for woodland and wildlife habitat. A significant acreage is used for cultivated crops, pasture, hay, and urban land. Erosion, droughtiness, and low fertility are management concerns in areas used for crops, pasture, or woodland.

5. Pacolet-Marvyn

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

Setting

Location in the survey area: Northern part
Landscape: Uplands in the Piedmont
Landform: Hillslopes
Landform position: Pacolet—sloping to moderately steep side slopes; Marvyn—nearly level summits and gently sloping side slopes
Slope: 0 to 25 percent

Composition

Percent of the survey area: 0.5
Pacolet soils: 70 percent
Marvyn soils: 20 percent
Minor soils: 10 percent, including Cowarts, Kinston, Luverne, Mooreville, Springhill, and Uchee soils

Soil Characteristics

Pacolet
Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—red clay; lower part—yellowish red clay loam
Substratum: Mottled reddish and brownish saprolite that has texture of sandy clay loam in the upper part and loam in the lower part

Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 6 to 25 percent
Parent material: Residuum from acid crystalline rocks, such as granite, gneiss, and schist

Marvyn
Surface layer: Brown sandy loam
Subsoil: Upper part—yellowish brown sandy clay loam; lower part—yellowish brown sandy clay loam that has reddish and brownish mottles
Substratum: Thinly stratified yellowish brown sandy loam, strong brown sandy loam, and light gray sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 6 percent
Parent material: Loamy sediments

Minor soils
- The loamy Cowarts and Springhill soils on the upper parts of side slopes and on narrow summits
- The poorly drained Kinston and moderately well drained Mooreville soils on narrow flood plains
- The clayey Luverne soils on the upper parts of side slopes
- The sandy Uchee soils on high knolls

Use and Management

Major uses: Woodland, wildlife habitat, pasture, and hay

Cropland
Management concerns: Pacolet—erodibility, restricted use of equipment, and low fertility; Marvyn—erodibility and low fertility

Pasture and hay
Management concerns: Pacolet—erodibility, restricted use of equipment, and low fertility; Marvyn—low fertility

Woodland
Management concerns: Pacolet—erodibility and restricted use of equipment in the steeper areas; Marvyn—no significant limitations

Urban development
Management concerns: Pacolet—slope, restricted permeability, and low strength; Marvyn—restricted permeability

6. Luverne-Troup-Lucy

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

Setting

Location in the survey area: Southeastern part
Landscape: Uplands of the Coastal Plain
Landform: Hillslopes
Landform position: Narrow, gently sloping summits and moderately sloping to steep side slopes
Slope: 1 to 35 percent

Composition

Percent of the survey area: 8
Luverne soils: 30 percent
Troup and similar soils: 25 percent
Lucy soils: 17 percent
Minor soils: 28 percent, including Alaga, Blanton, Eunola, Kinston, Mooreville, Springhill, and Wagram soils

Soil Characteristics

Luverne
Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish red sandy clay; next part—red clay that has brownish mottles; lower part—red sandy clay loam that has reddish and brownish mottles
Substratum: Stratified red, reddish yellow, and pale brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 35 percent
Parent material: Stratified clayey and loamy sediments

Troup
Surface layer: Brown loamy fine sand
Subsurface layer: Upper part—light yellowish brown loamy fine sand; lower part—very pale brown loamy sand
Subsoil: Red sandy clay loam
Depth class: Very deep
Drainage class: Somewhat excessively drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 35 percent
Parent material: Sandy and loamy sediments

Lucy
Surface layer: Brown loamy fine sand
Subsurface layer: Upper part—yellowish brown loamy fine sand; next part—brownish yellow loamy fine

sand; lower part—light yellowish brown loamy fine sand
Subsoil: Red and yellowish red sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 15 percent
Parent material: Sandy and loamy sediments

Minor soils
- The sandy Alaga, Blanton, and Wagram soils on summits and side slopes
- The moderately well drained Eunola soils on low terraces
- The poorly drained Kinston and moderately well drained Mooreville soils on narrow flood plains
- The loamy Springhill soils on side slopes

Use and Management

Major uses: Woodland and wildlife habitat

Cropland
Management concerns: Luverne—erodibility, restricted use of equipment, and low fertility; Troup and Lucy—droughtiness, restricted use of equipment, and low fertility

Pasture and hay
Management concerns: Luverne—erodibility, restricted use of equipment, and low fertility; Troup and Lucy—droughtiness, restricted use of equipment, and low fertility

Woodland
Management concerns: Luverne—erodibility, restricted use of equipment, and competition from undesirable plants; Troup and Lucy—restricted use of equipment, seedling survival, and erodibility

Urban development
Management concerns: Luverne—the shrink-swell potential, restricted permeability, low strength, and slope; Troup and Lucy—slope and droughtiness

7. Bama-Malbis-Luverne

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

Setting

Location in the survey area: Southwestern part
Landscape: Uplands of the Coastal Plain
Landform: High stream terraces and ridges
Landform position: Bama—broad, nearly level summits and gently sloping side slopes; Malbis—broad, nearly level summits; Luverne—gently sloping to strongly sloping side slopes
Slope: 0 to 15 percent

Composition

Percent of the survey area: 3.5
Bama and similar soils: 28 percent
Malbis and similar soils: 22 percent
Luverne soils: 20 percent
Minor soils: 30 percent, including Blanton, Compass, Kinston, Lucy, Marvyn, Mooreville, and Red Bay soils

Soil Characteristics

Bama
Surface layer: Very dark grayish brown fine sandy loam
Subsurface layer: Light yellowish brown fine sandy loam
Subsoil: Yellowish red sandy clay loam that has brownish and reddish mottles in the lower part
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 0 to 5 percent
Parent material: Loamy sediments

Malbis
Surface layer: Brown fine sandy loam
Subsurface layer: Light yellowish brown fine sandy loam
Subsoil: Upper part—yellowish brown fine sandy loam and sandy clay loam; next part—yellowish brown sandy clay loam that has reddish, brownish, and grayish mottles; lower part—strong brown sandy clay loam that has brownish and grayish mottles and plinthite
Depth class: Very deep
Drainage class: Well drained
Seasonal high water table: Perched, at a depth of $2^1/_2$ to 4 feet from January through April
Slope: 0 to 2 percent
Parent material: Loamy sediments

Luverne
Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish red sandy clay; next part—red clay that has brownish mottles; lower part—red sandy clay loam that has reddish and brownish mottles
Substratum: Stratified red, reddish yellow, and pale brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet

Slope: 1 to 15 percent
Parent material: Stratified clayey and loamy sediments

Minor soils
- The sandy Blanton and Lucy soils on high knolls
- The moderately well drained Compass soils on terraces at the lower elevations
- The poorly drained Kinston and moderately well drained Mooreville soils on narrow flood plains
- The loamy, dark reddish brown Red Bay soils on broad summits at the higher elevations
- The loamy Springhill soils on side slopes

Use and Management

Major uses: Cultivated crops, pasture, and hay

Cropland
Management concerns: Bama and Malbis—erodibility and low fertility; Luverne—erodibility, restricted use of equipment in the steeper areas, and low fertility

Pasture and hay
Management concerns: Bama and Malbis—low fertility; Luverne—restricted use of equipment in the steeper areas and low fertility

Woodland
Management concerns: Bama and Malbis—no significant limitations; Luverne—restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Bama—no significant limitations; Malbis—restricted permeability and wetness; Luverne—restricted permeability, the shrink-swell potential, and, in the steeper areas, slope

8. Cowarts-Uchee-Marvyn

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

Setting

Location in the survey area: Northern part
Landscape: Uplands of the Coastal Plain
Landform: Hillslopes and ridges
Landform position: Cowarts—moderately sloping to moderately steep side slopes; Uchee—nearly level to gently sloping summits and moderately sloping to moderately steep side slopes; Marvyn—nearly level to gently sloping summits
Slope: 0 to 25 percent

Composition

Percent of the survey area: 36
Cowarts and similar soils: 30 percent
Uchee and similar soils: 30 percent
Marvyn and similar soils: 18 percent
Minor soils: 22 percent, including Blanton, Compass, Kinston, Luverne, Mooreville, Pacolet, and Wagram soils

Soil Characteristics

Cowarts
Surface layer: Brown loamy sand
Subsurface layer: Yellowish brown loamy sand
Subsoil: Upper part—yellowish brown sandy clay loam; lower part—yellowish brown sandy clay loam that has brownish, reddish, and grayish mottles
Substratum: Mottled reddish, brownish, and grayish sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 5 to 25 percent
Parent material: Loamy sediments

Uchee
Surface layer: Dark brown loamy sand
Subsurface layer: Upper part—brown loamy sand; next part—yellowish brown loamy sand; lower part—brownish yellow loamy sand
Subsoil: Upper part—yellowish brown sandy loam; lower part—yellowish brown sandy clay loam that has brownish and reddish mottles
Substratum: Stratified light gray sandy clay, yellowish red sandy clay loam, and yellowish brown sandy loam
Depth class: Very deep
Drainage class: Well drained
Seasonal high water table: Perched, at a depth of 3½ to 5 feet from January through March
Slope: 1 to 25 percent
Parent material: Loamy and sandy sediments

Marvyn
Surface layer: Brown sandy loam
Subsoil: Upper part—yellowish brown sandy clay loam; lower part—yellowish brown sandy clay loam that has reddish and brownish mottles
Substratum: Thinly stratified yellowish brown sandy loam, strong brown sandy loam, and light gray sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet

Slope: 0 to 5 percent
Parent material: Loamy sediments

Minor soils
- The sandy, moderately well drained Blanton and well drained Wagram soils on high knolls
- The moderately well drained Compass soils on high stream terraces
- The poorly drained Kinston and moderately well drained Mooreville soils on narrow flood plains
- The clayey Luverne and Pacolet soils on the lower parts of side slopes
- The loamy Springhill soils on the upper parts of side slopes and on narrow summits

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Cowarts—erodibility, restricted use of equipment, and low fertility; Uchee—erodibility, droughtiness, restricted use of equipment, and low fertility; Marvyn—erodibility and low fertility

Pasture and hay
Management concerns: Cowarts—restricted use of equipment and low fertility; Uchee—restricted use of equipment, droughtiness, and low fertility; Marvyn—low fertility

Woodland
Management concerns: Cowarts—erodibility and restricted use of equipment; Uchee—erodibility, restricted use of equipment, and seedling survival; Marvyn—no significant limitations

Urban development
Management concerns: Cowarts—slope and restricted permeability; Uchee—slope, restricted permeability, and droughtiness; Marvyn—restricted permeability

9. Conecuh-Luverne

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

Setting

Location in the survey area: Southern part
Landscape: Uplands of the Coastal Plain
Landform: Hillslopes and ridges
Landform position: Conecuh—gently sloping, broad summits and gently sloping side slopes; Luverne—gently sloping, narrow summits and strongly sloping to steep side slopes
Slope: 1 to 35 percent

Composition

Percent of the survey area: 15
Conecuh soils: 75 percent
Luverne and similar soils: 15 percent
Minor soils: 10 percent, including Gritney, Kinston, Lucy, Mooreville, Oktibbeha, and Wagram soils

Soil Characteristics

Conecuh
Surface layer: Brown fine sandy loam
Subsoil: Upper part—red clay; next part—red and yellowish red clay that has brownish, yellowish, and grayish mottles; lower part—pale olive clay loam that has brownish and grayish mottles
Substratum: Pale olive clay loam that has yellowish and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 8 percent
Parent material: Clayey sediments

Luverne
Surface layer: Dark yellowish brown sandy loam
Subsoil: Upper part—yellowish red sandy clay; next part—red clay that has brownish mottles; lower part—red sandy clay loam that has reddish and brownish mottles
Substratum: Stratified red, reddish yellow, and pale brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 35 percent
Parent material: Stratified clayey and loamy marine sediments

Minor soils
- The moderately well drained Gritney soils on narrow summits
- The poorly drained Kinston and moderately well drained Mooreville soils on narrow flood plains
- The sandy Lucy and Wagram soils on high knolls
- The clayey Oktibbeha soils on the lower parts of slopes

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Conecuh—erodibility and low

fertility; Luverne—erodibility, restricted use of equipment in the steeper areas, and low fertility

Pasture and hay
Management concerns: Conecuh—erodibility and low fertility; Luverne—erodibility, restricted use of equipment in the steeper areas, and low fertility

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

Urban development
Management concerns: Conecuh—restricted permeability, the shrink-swell potential, and low strength; Luverne—restricted permeability, the shrink-swell potential, low strength, and, in the steeper areas, slope

Areas on Uplands of the Blackland Prairie Dominated by Nearly Level to Moderately Steep Clayey Soils

These well drained and moderately well drained soils are clayey throughout or have a loamy surface layer and a clayey subsoil. They make up about 15 percent of the county. A large acreage is forested and is used for woodland and wildlife habitat. A significant acreage is used for cultivated crops, pasture, or hay. The main management concerns for woodland are the clayey textures, which limit the use of equipment during wet periods and increase the seedling mortality rate during dry periods, and plant competition. A significant acreage is unsuited to pine trees because of excessive alkalinity. The high shrink-swell potential and low strength are concerns in the areas used for homesites or for roads and streets. The hazard of erosion is a management concern in areas used for crops and pasture.

10. Maytag-Hannon-Oktibbeha

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

Setting

Location in the survey area: Southern part
Landscape: Uplands of the Blackland Prairie
Landform: Ridges
Landform position: Summits and side slopes
Slope: 1 to 15 percent

Composition

Percent of the survey area: 7
Maytag and similar soils: 30 percent
Hannon soils: 25 percent
Oktibbeha soils: 12 percent
Minor soils: 33 percent, including Faunsdale, Sucarnoochee, Sumter, and Vaiden soils

Soil Characteristics

Maytag
Surface layer: Very dark grayish brown silty clay
Subsoil: Upper part—olive clay; next part—pale olive clay that has brownish and grayish mottles; lower part—mottled olive, grayish, and brownish clay
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 8 percent
Parent material: Alkaline, clayey residuum derived from chalk and marl

Hannon
Surface layer: Dark brown clay loam
Subsoil: Upper part—yellowish red clay; next part—light olive brown clay that has reddish and grayish mottles; lower part—mottled olive, brownish, and grayish clay and clay loam
Substratum: Thinly stratified light olive gray sandy clay and olive sandy loam and sandy clay loam
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 12 percent
Parent material: Clayey residuum derived from alkaline clays, chalk, and marl

Oktibbeha
Surface layer: Dark brown clay loam
Subsoil: Upper part—red clay that has brownish and grayish mottles; next part—brownish yellow clay that has grayish and brownish mottles; lower part—light olive brown clay and pale yellow silty clay having grayish and brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 15 percent
Parent material: Clayey residuum derived from alkaline clays, chalk, and marl

Minor soils
- The alkaline, somewhat poorly drained Faunsdale soils on toeslopes
- The somewhat poorly drained Sucarnoochee soils on narrow flood plains

- The alkaline, moderately deep Sumter soils on crests of ridges and on side slopes
- The somewhat poorly drained, acid Vaiden soils in the lower, smoother positions

Use and Management

Major uses: Pasture, hay, and woodland

Cropland
Management concerns: Erodibility and tilth

Pasture and hay
Management concerns: Erodibility

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

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

11. Oktibbeha-Conecuh

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

Setting

Location in the survey area: Southern part
Landscape: Uplands of the Blackland Prairie
Landform: Hillslopes and ridges
Landform position: Oktibbeha—summits of broad ridges and upper parts of side slopes; Conecuh—middle and lower parts of side slopes
Slope: 1 to 15 percent

Composition

Percent of the survey area: 7
Oktibbeha and similar soils: 55 percent
Conecuh and similar soils: 15 percent
Minor soils: 30 percent, including Hannon, Kinston, Luverne, Mooreville, Sumter, and Urbo soils

Soil Characteristics

Oktibbeha
Surface layer: Dark brown clay loam
Subsoil: Upper part—red clay that has brownish and grayish mottles; next part—brownish yellow clay that has grayish and brownish mottles; lower part—light olive brown clay and pale yellow silty clay having grayish and brownish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 15 percent
Parent material: Clayey residuum derived from alkaline clays, chalk, and marl

Conecuh
Surface layer: Brown fine sandy loam
Subsoil: Upper part—red clay; next part—red and yellowish red clay that has brownish, yellowish, and grayish mottles; lower part—pale olive clay loam that has brownish and grayish mottles
Substratum: Pale olive clay loam that has yellowish and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 1 to 8 percent
Parent material: Clayey sediments

Minor soils
- Scattered areas of Hannon soils, which are alkaline within a depth of 30 inches, on summits
- The poorly drained Kinston, moderately well drained Mooreville, and somewhat poorly drained Urbo soils on narrow flood plains
- The well drained, clayey Luverne soils on high knolls
- The alkaline, moderately deep Sumter soils on narrow summits

Use and Management

Major uses: Woodland, wildlife habitat, and pasture

Cropland
Management concerns: Erodibility and tilth

Pasture and hay
Management concerns: Erodibility

Woodland
Management concerns: Oktibbeha—restricted use of equipment, seedling survival, and competition from undesirable plants; Conecuh—restricted use of equipment and competition from undesirable plants

Urban development
Management concerns: Oktibbeha—restricted permeability, the shrink-swell potential, low strength, and, in the steeper areas, slope; Conecuh—restricted permeability, the shrink-swell potential, and low strength

12. Sumter-Hannon-Oktibbeha

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

Setting

Location in the survey area: Southeastern part
Landscape: Uplands of the Blackland Prairie
Landform: Hillslopes and ridges
Landform position: Sumter—moderately sloping to moderately steep side slopes; Hannon and Oktibbeha—moderately sloping summits and strongly sloping to moderately steep side slopes
Slope: 1 to 25 percent

Composition

Percent of the survey area: 1
Sumter soils: 40 percent
Hannon soils: 30 percent
Oktibbeha soils: 15 percent
Minor soils: 15 percent, including Eunola, Kinston, Luverne, Maytag, and Urbo soils

Soil Characteristics

Sumter
Surface layer: Very dark grayish brown silt loam
Subsoil: Upper part—light olive brown silty clay loam; next part—light yellowish brown silty clay loam; lower part—olive yellow silty clay
Bedrock layer: Thinly bedded strata of fossil oyster shell, chalk, and marl
Depth class: Moderately deep
Drainage class: Well drained
Depth to seasonal high water table: More than 6 feet
Slope: 5 to 25 percent
Parent material: Alkaline, loamy and clayey residuum derived from chalk and marl

Hannon
Surface layer: Dark brown clay loam
Subsoil: Upper part—yellowish red clay; next part—light olive brown clay that has reddish and grayish mottles; lower part—mottled olive, brownish, and grayish clay and clay loam
Substratum: Thinly stratified light olive gray sandy clay and olive sandy loam and sandy clay loam
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 5 to 25 percent
Parent material: Clayey residuum derived from alkaline clays, chalk, and marl

Oktibbeha
Surface layer: Dark brown clay loam
Subsoil: Upper part—red clay that has brownish and grayish mottles; next part—brownish yellow clay that has brownish and grayish mottles; lower part—light olive brown clay and pale yellow silty clay having brownish and grayish mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to seasonal high water table: More than 6 feet
Slope: 5 to 15 percent
Parent material: Clayey residuum derived from alkaline clays, chalk, and marl

Minor soils
- The loamy Eunola soils on low terraces
- The poorly drained Kinston and somewhat poorly drained Urbo soils on narrow flood plains
- The well drained, clayey Luverne soils on high knolls
- The alkaline, very deep Maytag soils on side slopes

Use and Management

Major uses: Woodland and wildlife habitat

Cropland
Management concerns: Erodibility, tilth, and restricted use of equipment

Pasture and hay
Management concerns: Erodibility and restricted use of equipment

Woodland
Management concerns: Erodibility; restricted use of equipment; seedling survival; competition from undesirable plants; and, in areas of the Sumter soil, unsuited to pine trees because of excess alkalinity

Urban development
Management concerns: Sumter—slope, the shrink-swell potential, depth to bedrock, and restricted permeability; Hannon and Oktibbeha—slope, the shrink-swell potential, restricted permeability, 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, Red Bay sandy loam, 0 to 2 percent slopes, is a phase of the Red Bay series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Riverview-Bruno complex, 0 to 3 percent slopes, occasionally flooded, is an example.

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

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

AlA—Altavista silt loam, 0 to 2 percent slopes, rarely flooded

This very deep, moderately well drained soil is on low stream terraces that parallel the Tallapoosa River. Flooding is rare, but it can occur under unusual weather conditions. Slopes are long and smooth. Individual areas are generally oblong in shape. They range from 10 to about 100 acres in size.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil extends to a depth of 80 inches. In the upper part, it is dark yellowish brown clay loam that has brownish mottles. In the next part, it is yellowish brown loam and dark yellowish brown clay loam having brownish and grayish mottles. In the lower part, it is brown loam that has grayish mottles.

Important properties of the Altavista soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of $1^1/_2$ to $2^1/_2$ feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Cahaba, Riverview, and Roanoke soils. The well drained Cahaba soils are in the slightly higher, more convex positions and have a reddish subsoil. Riverview soils are in convex positions on natural levees and do not have grayish mottles in the upper part of the subsoil. The poorly drained Roanoke soils are in shallow depressions. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. Wetness is a limitation. The surface layer is friable and easy to keep in good tilth. Shallow ditches can help to remove excess surface water. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

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

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include yellow-popular, sweetgum, water oak, and cherrybark 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 2.2 cords per acre per year. The understory vegetation consists of blackberry, greenbrier, panicums, longleaf uniola, poison ivy, Alabama supplejack, muscadine grape, sweetgum, and water oak.

This map unit has moderate limitations affecting timber management. The main limitation is plant competition, which hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation, herbicides, or controlled burning.

This map unit is poorly suited to most urban uses. It has severe limitations affecting most uses. The main limitations are the flooding, wetness, and restricted permeability. Pilings or mounds can elevate buildings above the expected level of flooding. Septic tank absorption fields do not function properly during periods of inundation and may not function properly during rainy periods because of the moderate permeability and the seasonal high water table.

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

The capability subclass is IIw. The woodland ordination symbol is 9A.

ArB—Arents, smooth

These very deep soils are on uplands in the southeastern part of the county. They formed in the mixed loamy and sandy material remaining after the thick, sandy surface and subsurface layers of other soils have been removed for use as foundry sand. Examples include the Alaga, Blanton, Bonifay, Lucy, Troup, and Wagram soils. In most areas, most of the sandy material was removed, exposing the loamy subsoil or substratum. Most areas have been smoothed to the general land contours that existed before the mining, but no effort was made to replace soil material in an orderly sequence. In most areas, the upper 20 to 40 inches of the subsoil or substratum was disturbed during reclamation and is variable in texture and color.

Most areas of these soils are irregular in shape and range from 10 to more than 80 acres in size. Slopes are generally long and smooth. They range from 2 to 5 percent. These soils are highly variable within a short distance, and they may be loamy, sandy, or stratified with various textures. The color of the soil material varies from dark red to pale brown and is commonly mixed in shades of red, brown, and yellow.

Included in mapping are a few small areas of unaltered soils, mostly Alaga, Blanton, Bonifay, Lucy, Troup, and Wagram soils. They are generally on the edges of mapped areas. Included soils make up about 5 percent of the map unit.

Most areas of this map unit have been planted to loblolly pine. A few areas are used for pasture or hay.

This map unit is generally poorly suited to most agricultural and urban uses. The limitations affecting plant growth include poor tilth, low fertility, low content of organic matter, and droughtiness. The limitations affecting most urban uses include the variable soil textures and permeability. Onsite investigation and testing are needed to determine the suitability of this unit for any uses.

This map unit is suited to loblolly pine and longleaf pine. 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 1.6 cords per acre per year.

This map unit has moderate limitations affecting timber management. The main limitation is the moderate seedling mortality rate caused by soil compaction and droughtiness. It can be compensated for by increasing the number of trees planted. Planting trees on raised beds or subsoiling to loosen the compacted soil material increases the seedling survival rate.

The capability subclass is IVs. The woodland ordination symbol is 7S.

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

This very deep, well drained soil is on summits of broad ridges and high terraces. Slopes are long and smooth. Individual areas are generally broad or oblong. They range from 10 to more than 500 acres in size.

Typically, the surface layer is very dark grayish brown and brown fine sandy loam about 8 inches thick. The subsurface layer is light yellowish brown fine sandy loam to a depth of 14 inches. The subsoil extends to a depth of 80 inches. It is yellowish red sandy clay loam. It has brownish and reddish mottles 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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Malbis and Red Bay soils. Malbis soils are in slightly lower positions than the Bama soil and have a brownish subsoil. Red Bay soils are in slightly higher landscape positions than the Bama soil and are dark reddish brown and dark red throughout the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops (fig. 3). It has few limitations affecting this use, although the low fertility is a management concern. The surface layer is friable and is easy to keep in good tilth. It can be tilled over a wide range of moisture content without becoming cloddy. Using conservation practices, such as cover crops, minimum tillage, and returning all crop residue to the soil or regularly adding other organic matter, improves fertility and helps to maintain tilth and the content of organic matter. Most crops respond well to systematic applications of lime and fertilizer.

Figure 3.—Irrigated cotton in an area of Bama fine sandy loam, 0 to 2 percent slopes.

This map unit is well suited to pasture and hay. It has no significant limitations affecting these uses, although the 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 fertility and increase the production of forage.

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

This map unit has few limitations affecting timber management, 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 map unit is well suited to most urban uses. It has no significant limitations for most urban uses.

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

The capability class is I. The woodland ordination symbol is 9A.

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

This very deep, well drained soil is on summits of narrow ridges and on the upper parts of side slopes of high terraces. 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 fine sandy loam about 9 inches thick. The subsoil is sandy clay loam and extends to a depth of 65 inches. It is yellowish red in the upper part and dark red 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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Luverne, Malbis, and Springhill soils. Malbis soils are in landscape positions similar to those of Bama soils and have a brownish subsoil. Luverne and Springhill soils are in slightly lower landscape positions than the Bama soil. Luverne soils have clayey subsoil layers. Springhill soils have a significant decease in clay content in the lower part of the subsoil. Also included are small areas that have slopes of greater than 5 percent. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. The hazard of erosion, however, is moderate. 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 applications of lime and fertilizer.

This map unit is well suited to pasture and hay. The hazard of erosion, however, is moderate. Coastal bermudagrass and bahiagrass are the commonly grown grasses. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rate, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

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

This map unit has few limitations affecting timber management, although competition from understory plants is a 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 map unit is well suited to most urban uses. It has no significant limitations affecting these uses.

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

The capability subclass is IIe. The woodland ordination symbol is 9A.

BeA—Bethera clay loam, 0 to 1 percent slopes, frequently flooded

This very deep, poorly drained soil is on low terraces and flood plains adjacent to major streams. It is subject to flooding for brief periods several times each year. Individual areas are generally long and narrow, but some areas are oblong. They range from 10 to 300 acres in size.

Typically, the surface layer is dark gray clay loam about 2 inches thick. The subsoil extends to a depth of 60 inches. In the upper part, it is gray clay loam that has brownish mottles. In the lower part, it is gray clay that has brownish mottles.

Important properties of the Bethera soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 1/2 feet from December through April
Shrink-swell potential: Moderate
Flooding: Frequent, for brief periods from December through April

Included in mapping are a few small areas of Eunola, Kinston, Lynchburg, and Riverview soils. The moderately well drained Eunola soils are on low knolls. Kinston soils are in shallow depressions and swales and are loamy throughout. The somewhat poorly drained Lynchburg soils are in the slightly higher, more convex positions and are loamy throughout. The moderately well drained Riverview soils are on the high parts of natural levees adjacent to the stream channel. Riverview soils are loamy throughout. Included soils make up about 15 percent of the map unit. 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 small areas are used for pasture or hay.

This map unit is poorly suited to cultivated crops. The flooding and wetness are the main limitations. Tillage and planting may be delayed in spring, and crops may be damaged by flooding in late spring and early summer. Although the flooding could be controlled by a system of levees and pumps, installing such a system is commonly impractical. Shallow ditches help to remove water from the surface.

This map unit is poorly suited to pasture and hay because of the frequent flooding and the wetness. Grasses that are tolerant of wetness and flooding are recommended. Common bermudagrass is suitable. Deferment of 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 map unit is well suited to loblolly pine, sweetgum, water oak, and other hardwoods. Other species that commonly grow in areas of this map unit include green ash, willow oak, cherrybark oak, and Nuttall 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, poison ivy, red maple, sweetbay, sweetgum, blackgum, and water oak.

This map unit has severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less 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 increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. The flooding, wetness, and slow permeability are severe limitations. Also, low strength is a severe limitation affecting local roads and streets. Buildings in areas of this soil should be constructed on pilings or on well-compacted fill material that elevates the building above the expected level of flooding.

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

The capability subclass is VIw. The woodland ordination symbol is 9W.

BgB—Bigbee loamy sand, 1 to 3 percent slopes, rarely flooded

This very deep, excessively drained soil is on low stream terraces and natural levees adjacent to the Tallapoosa River and other large streams. Flooding is rare but can occur under unusual weather conditions.

Slopes are generally long and smooth, but may be short and complex in some areas. Individual areas are long and narrow. They range from 10 to 100 acres in size.

Typically, the surface layer is dark yellowish brown loamy sand about 11 inches thick. The substratum extends to a depth of 84 inches. It is brown loamy sand in the upper part, yellowish brown loamy sand in the next part, and brownish yellow sand in the lower part.

Important properties of the Bigbee soil—

Permeability: Rapid
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3 1/2 to 6 feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Cahaba, Eunola, and Riverview soils. Cahaba soils are in the slightly higher positions on low terraces and have a reddish, loamy subsoil. Eunola soils are in the slightly lower positions on low terraces and are loamy in the upper part of the subsoil. Riverview soils are in positions similar to those of the Bigbee soil and have a brownish, loamy subsoil. Also included are a few small areas that have a surface layer of gravelly sand. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay plants, such as bahiagrass and coastal bermudagrass. Droughtiness is the main limitation. The leaching of plant nutrients is also a limitation. Split applications of nitrogen fertilizer are recommended to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, sweetgum, willow oak, 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 1.6 cords per acre per year. The understory vegetation consists mainly of huckleberry, greenbrier, pricklypear cactus, blackberry, common persimmon, blackjack oak, and water oak.

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

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

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

The capability subclass is IIIs. The woodland ordination symbol is 7S.

BnE—Blanton-Luverne complex, 12 to 25 percent slopes

This map unit consists of the very deep, moderately well drained, sandy Blanton soil and the very deep, well drained, clayey Luverne soil. It is on hillslopes in highly dissected uplands. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. The Blanton soil makes up about 50 percent of the unit, and the Luverne soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 25 to 500 acres in size.

The Blanton soil generally is on the upper parts of slopes. Typically, the surface layer is dark yellowish brown loamy sand about 6 inches thick. The subsurface layer is loamy sand and extends to a depth of 68 inches. It is light yellowish brown in the upper part, pale yellow and very pale brown in the next part, and brownish yellow in the lower part. The subsoil is sandy clay loam and extends to depth of 80 inches. It is brownish yellow in the upper part and yellowish brown in the lower part.

Important properties of the Blanton soil—

Permeability: Rapid in the surface layer and subsurface layer and moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 4 to 6 feet from January through March
Shrink-swell potential: Low
Flooding: None

The Luverne soil generally is on the middle and lower parts of slopes. Typically, the surface layer is brown sandy loam about 4 inches thick. The subsoil extends to a depth of 40 inches. It is red clay in the upper part and red sandy clay loam that has brownish mottles in the lower part. The substratum to a depth of 65 inches is stratified sandy loam and sandy clay loam. Individual strata are yellowish red, red, light gray, and strong brown.

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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Alaga, Cowarts, Kinston, Lucy, Springhill, and Troup soils. Alaga, Lucy, and Troup soils are in landscape positions similar to those of the Blanton soil. Alaga soils do not have loamy materials within a depth of 80 inches. Lucy soils have sandy surface and subsurface layers that have a combined thickness of 20 to 40 inches. Troup soils do not have a seasonal high water table within a depth of 6 feet and have a reddish subsoil. Cowarts and Springhill soils are in landscape positions similar to those of the Luverne soil. Cowarts soils do not have thick, sandy surface and subsurface layers and have a brownish subsoil. Springhill soils do not have thick, sandy surface and subsurface layers and have a reddish, loamy subsoil. The poorly drained Kinston soils are on narrow flood plains. Also included are a few small areas that are severely eroded. Included soils make up about 15 percent of the map unit. 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.

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

This map unit is poorly suited to pasture and hay. The main limitations are the slope, the droughtiness of the Blanton soil, and a 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 this map unit include shortleaf pine, longleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85 in areas of the Blanton soil and 90 in areas of the Luverne soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.0 cords per acre per year in areas of Blanton soil and 2.2 cords per acre per year in areas of Luverne soil. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, brackenfern, wax myrtle, muscadine grape, American beautyberry, yellow jessamine, huckleberry, and flowering dogwood.

This map unit has moderate limitations affecting

timber management. The main limitations are erosion, the restricted use of equipment, the seedling mortality rate in areas of the Blanton soil, and plant competition. Exposing the surface by removing ground cover increases the hazard of erosion, and exposed soil surfaces are subject to rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope and sandy texture of the Blanton soil restrict the use of equipment. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. The moderate seedling mortality rate in areas of the Blanton soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control 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 and the sandy textures of the Blanton soils.

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

The capability subclass is VIIe. The woodland ordination symbol is 8R in areas of the Blanton soil and 9R in areas of the Luverne soil.

BoB—Bonifay loamy fine sand, 1 to 5 percent slopes

This very deep, well drained soil is on summits of broad ridges in the uplands. Slopes generally are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 100 acres in size.

Typically, the surface layer is brown loamy fine sand about 7 inches thick. The subsurface layer extends to a depth of 58 inches. It is yellowish brown loamy fine sand in the upper part and light yellowish brown loamy fine sand that has brownish mottles in the lower part. The subsoil is sandy clay loam and extends to a depth of 84 inches. It is yellowish brown in the upper part and mottled yellowish brown, light brownish gray, strong brown, and dark red in the lower part. The subsoil has nodular plinthite throughout.

Important properties of the Bonifay soil—

Permeability: Rapid in the surface layer and subsurface layer and moderately slow in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Shrink-swell potential: Low
Seasonal high water table: Perched, at a depth of 4 to 5 feet from January through March
Flooding: None

Included in mapping are a few small areas of Blanton, Cowarts, Lucy, Marvyn, and Wagram soils. Blanton, Lucy, and Wagram soils are in positions similar to those of the Bonifay soil. Blanton soils are moderately well drained and do not have a significant content of plinthite within a depth of 60 inches. Lucy and Wagram soils have sandy surface and subsurface layers that have a combined thickness of 20 to 40 inches. Cowarts and Marvyn soils are in the lower positions and do not have thick, sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. The main limitations are the low available

water capacity and the very low fertility. The leaching of plant nutrients is also a limitation. Frequent, light applications of nitrogen are necessary to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, and southern red 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 2.0 cords per acre per year. The understory vegetation consists mainly of little bluestem, longleaf uniola, lespedeza, common persimmon, pricklypear cactus, brackenfern, flowering dogwood, and blackjack oak.

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

This map unit is suited to most urban uses. It has slight to moderate limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the sandy texture, wetness, low fertility, and droughtiness. Cutbanks are unstable and are subject to slumping. Support beams should be used to maintain the stability of the cutbanks. If septic tank absorption fields are used, effluent can surface in downslope areas and create a hazard to health. Increasing the length of the absorption lines helps to overcome this concern. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has poor potential to support habitat for openland wildlife, fair potential to support habitat for woodland wildlife, and very poor potential to support habitat for wetland wildlife. The low available water capacity and the very low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.

The capability subclass is IIIs. The woodland ordination symbol is 8S.

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

This very deep, well drained soil is on low terraces that parallel the Tallapoosa 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 10 to 80 acres in size.

Typically, the surface layer is brown sandy loam about 7 inches thick. The subsurface layer extends to a depth of 12 inches. It is mixed dark yellowish brown and yellowish red sandy loam. The subsoil is sandy clay loam and extends to a depth of 48 inches. It is red in the upper part and yellowish red in the lower part. The substratum to a depth of 80 inches is strong brown sandy loam.

Important properties of the Cahaba soil—

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

Included in mapping are a few small areas of Altavista, Dogue, Eunola, and Myatt soils. Also included are small areas of soils that are similar to the Cahaba soil, except that they have gravelly or very gravelly layers within a depth of 60 inches. Altavista, Dogue, and Eunola soils are in the slightly lower, more concave positions. The moderately well drained Altavista and Eunola soils have a brownish subsoil. Dogue soils are clayey in the upper part of the subsoil. The poorly drained Myatt soils are in small depressions. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. It has few limitations affecting this use, although the 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 map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. Few limitations affect the use of this map unit for pasture and hay. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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, yellow-poplar, and water oak.

This map unit has few limitations affecting timber management, although 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 map unit is poorly suited to most urban uses. The hazard of flooding is severe and is difficult to overcome. If this soil is used as a homesite, the building should be constructed on elevated, well-compacted fill material to minimize damage from floodwater.

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

The capability class is I. The woodland ordination symbol is 10A.

CmB—Compass loamy sand, 1 to 3 percent slopes

This very deep, moderately well drained soil is on summits of broad ridges and high stream terraces. Slopes are generally long and smooth. Most areas are long and narrow, but some areas are broad or oblong. Individual areas range from 15 to more than 60 acres in size.

Typically, the surface layer is brown loamy sand about 11 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish brown sandy loam in the upper part, yellowish brown and dark yellowish brown sandy loam that has reddish masses of plinthite in the next part, and strong brown and mottled brownish, reddish, and grayish sandy loam that has reddish masses of plinthite in the lower part.

Important properties of the Compass soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of $2^1/_2$ to $3^1/_2$ feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Marvyn, Orangeburg, and Uchee soils. Also included are a few small areas of poorly drained soils in shallow, round depressions. Marvyn soils are in positions similar to those of the Compass soil. They have a higher content of clay in the upper part of the subsoil than the Compass soil and do not have a significant accumulation of plinthite in the lower part of the subsoil. The well drained Orangeburg soils are on shoulder slopes and convex knolls and have a reddish subsoil. Uchee soils are on high knolls and have thick, sandy surface and subsurface layers. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops (fig. 4). The main limitations are the low fertility, droughtiness, and a moderate hazard of erosion. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion.

Figure 4.—Field-crop research plots in an area of Compass loamy sand, 1 to 3 percent slopes, at the E.V. Smith Agricultural Experiment Station.

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. Using supplemental irrigation and planting crop varieties that are adapted to droughty conditions increase crop production. Most crops respond well to applications of lime and fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. The main limitations are the low fertility and droughtiness. Using supplemental irrigation and seeding crop varieties that are adapted to droughty conditions increase productivity. Proper stocking rate, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of little bluestem, greenbrier, yellow jessamine, panicums, sumac, sweetgum, southern red oak, and water oak.

This map unit has few limitations affecting timber management, although competition from understory plants is a 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 map unit is suited to most urban uses. It has moderate limitations affecting building sites, slight limitations affecting local roads and streets, and severe limitations affecting most sanitary facilities. The main limitations are wetness and the moderately slow permeability. A subsurface drainage system

reduces the wetness. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the moderately slow permeability. Enlarging the size of the absorption field helps to overcome these limitations.

This map unit has fair potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIe. The woodland ordination symbol is 10A.

CoB—Conecuh fine sandy loam, 1 to 3 percent slopes

This very deep, moderately well drained soil is on summits and shoulder slopes of broad ridges. Slopes are long and smooth. Individual areas are irregular in shape. They range from 50 to 500 acres in size.

Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsoil extends to a depth of 47 inches. It is red clay in the upper part; red and yellowish red clay that has brownish, yellowish, and grayish mottles in the next part; and pale olive clay loam that has grayish and brownish mottles in the lower part. The substratum to a depth of 60 inches is pale olive clay loam that has yellowish and grayish mottles.

Important properties of the Conecuh soil—

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

Included in mapping are a few small areas of Lucy, Luverne, Oktibbeha, and Orangeburg soils. Lucy, Luverne, and Orangeburg soils are on the slightly higher knolls. Lucy soils have thick, sandy surface and subsurface layers. Luverne soils have mixed clay mineralogy. Orangeburg soils are loamy throughout. Oktibbeha soils are in the lower positions and have alkaline strata within a depth of 60 inches. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

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

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

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. The low strength restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local

roads and streets, and most kinds of sanitary facilities. The main limitations are the very slow permeability, the high shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff 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 low strength and instability of the subsoil. Septic tank absorption fields do not function properly during rainy periods because of the very slow permeability. An alternative method of sewage disposal is needed to dispose of sewage properly.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIIe. The woodland ordination symbol is 9C.

CoC2—Conecuh fine sandy loam, 3 to 8 percent slopes, eroded

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

Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsoil extends to a depth of 52 inches. It is red silty clay in the upper part, red silty clay that has grayish and brownish mottles in the next part, and mottled grayish, reddish, and brownish silty clay and silty clay loam in the lower part. The substratum to a depth of 72 inches is light brownish gray silty clay loam that has reddish and brownish mottles.

Important properties of the Conecuh soil—

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

Included in mapping are a few small areas of Luverne, Kinston, and Oktibbeha soils. Luverne soils are on the slightly higher knolls and have mixed mineralogy. The poorly drained Kinston soils are in narrow drainageways. Oktibbeha soils are on the lower parts of slopes and are alkaline in the lower part of the subsoil and in the substratum. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is poorly suited to most cultivated crops. The main limitations are the low fertility and a severe hazard of erosion. Measures that control erosion include early-fall seeding, minimum tillage, terraces, diversions, and grassed waterways. Tillage should be on the contour or across the slope. Maintaining crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. Most crops respond well to systematic applications of fertilizer and lime.

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

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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

muscadine grape, poison ivy, yellow jessamine, flowering dogwood, longleaf uniola, panicums, sweetgum, and water oak.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. The low strength of the clayey subsoil 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth. Exposing the surface by removing ground cover increases the hazard of erosion, including rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding.

This map unit is poorly suited to most urban uses. It has moderate and severe limitations affecting 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. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff 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 low strength and instability of the subsoil. Septic tank absorption fields do not function properly because of the very slow permeability. An alternate method of sewage disposal is needed to dispose of sewage properly.

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

The capability subclass is IVe. The woodland ordination symbol is 9C.

CwD2—Cowarts loamy sand, 5 to 15 percent slopes, eroded

This very deep, well drained soil is on hillslopes in the northern part of the county. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and gullies. Slopes are generally short and complex, but some are long and smooth. Individual areas are irregular in shape. They range from 5 to 150 acres in size.

Typically, the surface layer is brown loamy sand about 6 inches thick. The subsurface layer is yellowish brown loamy sand to a depth of 10 inches. The subsoil extends to a depth of 39 inches. It is yellowish brown sandy clay loam in the upper part and yellowish brown sandy clay loam that has brownish, reddish, and grayish mottles in the lower part. The substratum to a depth of 60 inches is mottled reddish, brownish, and grayish sandy clay loam.

Important properties of the Cowarts soil—

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

Included in mapping are a few small areas of Kinston, Luverne, Marvyn, Springhill, and Uchee soils. Also included are small areas of soils that have layers of gravel within a depth of 60 inches. The poorly drained Kinston soils are in narrow drainageways. Luverne soils are on the lower parts of slopes and are clayey in the upper part of the subsoil. Marvyn soils are on smooth slopes of narrow ridges and have a solum that is more than 40 inches thick. Springhill soils are in landscape positions similar to those of the Cowarts soil and have a reddish subsoil. Uchee soils are on the upper parts of slopes. They have thick, sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is suited to pasture and hay. The main limitations are the low fertility and the complex slopes. Erosion is a severe hazard if the soil is left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

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

This map unit has only slight limitations affecting timber management. Erosion, however, is a hazard. Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings. Reseeding all disturbed areas with adapted grasses and legumes helps to reduce the hazard of erosion and the siltation of streams.

This map unit is poorly suited to most urban uses. It has moderate limitations affecting building sites and severe limitations affecting local roads and streets and most kinds of sanitary facilities. The main limitations are the slope and the moderately slow permeability. 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. Septic tank absorption fields may not function properly because of the moderately slow permeability. Enlarging the size of the absorption field or using an alternative method of waste disposal helps to overcome this limitation.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers (fig. 5).

The capability subclass is VIe. The woodland ordination symbol is 8A.

DgA—Dogue fine sandy loam, 0 to 2 percent slopes, rarely flooded

This very deep, moderately well drained soil is on low stream terraces adjacent to major streams in the northern part of the county. Flooding is rare, but it can occur under unusual weather conditions. Slopes are long and smooth. Individual areas are generally oblong in shape. They range from 25 to about 100 acres in size.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The subsoil extends to a depth of 58 inches. It is dark yellowish brown clay loam in the upper part, strong brown and dark yellowish brown clay that has brownish and grayish mottles in the next part, and strong brown sandy clay loam that has reddish and grayish mottles in the lower part. The substratum to a depth of 72 inches is yellowish brown sandy loam that has reddish and grayish mottles.

Important properties of the Dogue soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 1/2 to 3 feet from January through March

Figure 5.—Farm ponds, such as this one in an area of Cowarts loamy sand, 5 to 15 percent slopes, eroded, provide water for livestock, habitat for wetland wildlife, and opportunities for fishing and swimming.

Shrink-swell potential: Moderate
Flooding: Rare

Included in mapping are a few small areas of Cahaba, Eunola, Kinston, and Myatt soils. Cahaba and Eunola soils are in the slightly higher, more convex positions and are loamy throughout the subsoil. The poorly drained Kinston soils are on narrow flood plains. The poorly drained Myatt soils are in the slightly lower positions and are loamy in the upper part of the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. The main limitations are wetness and the low fertility. Shallow ditches can help to remove excess surface water. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

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

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include yellow-popular, sweetgum, water oak, and cherrybark 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 of blackberry, greenbrier, panicums, longleaf uniola, poison ivy, Alabama

supplejack, muscadine grape, sweetgum, and water oak.

This map unit has moderate limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting activities should be planned for seasons when the soil is dry. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation, herbicides, or controlled burning.

This map unit is poorly suited to most urban uses. The main limitations are the flooding, wetness, and the slow permeability. Pilings or mounds can elevate buildings above the expected level of flooding. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow permeability. Constructing the absorption field on a raised bed helps to overcome these limitations.

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

The capability subclass is IIw. The woodland ordination symbol is 9W.

EuA—Eunola fine sandy loam, 0 to 2 percent slopes, rarely flooded

This very deep, moderately well drained soil is on low terraces that are parallel to major streams in the northern part of 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 250 acres in size.

Typically, the surface layer is dark brown and brown fine sandy loam about 7 inches thick. The subsurface layer is light yellowish brown fine sandy loam to a depth of 10 inches. The subsoil extends to a depth of 60 inches. In the upper part, it is dark yellowish brown and brown sandy clay loam that has brownish and reddish mottles. In the next part, it is yellowish brown and brownish yellow sandy clay loam that has reddish and grayish mottles. In the lower part, it is mottled brownish and grayish sandy loam. The substratum to a depth of 72 inches is strong brown loamy sand.

Important properties of the Eunola soil—

Permeability: Moderate in the subsoil and rapid in the substratum
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 1/2 to 2 feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Bethera, Cahaba, Dogue, Kinston, and Myatt soils. The poorly drained Bethera and Myatt soils are in slightly lower, more concave positions than those of the Eunola soil. The well drained Cahaba soils are in the slightly higher, more convex positions and have reddish colors in the subsoil. Dogue soils are in slightly lower positions than those of the Eunola soils and are clayey in the upper part of the subsoil. The poorly drained Kinston soils are in narrow drainageways. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland or pasture. A few areas are used for cultivated crops or hay (fig. 6).

This map unit is well suited to cultivated crops. It has few limitations affecting this use. Some areas may require surface drainage or grading to facilitate the removal of excess water. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. Wetness is a moderate limitation.

Figure 6.—Hybrid bermudagrass sod in an area of Eunola fine sandy loam, 0 to 2 percent slopes, rarely flooded. Irrigation ensures rapid growth and regeneration throughout the growing season.

Excessive surface water can be removed by shallow ditches. Deferring or restricting grazing during very wet periods helps to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include longleaf pine, yellow-poplar, sweetgum, cherrybark oak, 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, switchcane, blackberry, panicums, longleaf uniola, poison ivy, sweetgum, and water oak.

This map unit has moderate limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting activities should be planned for seasons when the soil is dry. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation or controlled burning.

This map unit is poorly suited to most urban uses. The main limitations are the flooding and wetness. Pilings or mounds can elevate buildings above the expected level of flooding. Septic tank absorption fields may not function properly because of the moderate permeability and the seasonal high water table. Enlarging the size of the absorption field and using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improve the performance of a septic system.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or

promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIw. The woodland ordination symbol is 10W.

FaA—Faunsdale clay loam, 1 to 3 percent slopes

This very deep, somewhat poorly drained soil is on toeslopes and side slopes in the uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to 25 acres in size.

Typically, the surface layer is very dark grayish brown clay loam about 9 inches thick. The subsurface layer extends to a depth of 17 inches. It is dark grayish brown silty clay. The subsoil extends to a depth of 80 inches. It is brown and olive brown silty clay in the upper part and light olive brown and olive silty clay that has concretions and soft masses of calcium carbonate in the lower part. The subsoil has grayish mottles and soft masses and concretions of iron and manganese oxides throughout.

Important properties of the Faunsdale soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 4 to 6 feet from January through April
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Hannon, Maytag, Oktibbeha, and Sucarnoochee soils. Hannon, Maytag, and Oktibbeha soils are in slightly higher positions than those of the Faunsdale soil. Hannon and Oktibbeha soils have reddish colors and are acid in the upper part of the subsoil. Maytag soils are moderately well drained. Sucarnoochee soils are on narrow flood plains and are subject to frequent flooding. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

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

This map unit is suited to eastern redcedar and hardwoods. It is not suited to pine trees because it is alkaline below the surface layer. Other species that commonly grow in areas of this map unit include sugarberry, green ash, and pecan. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of panicums, Johnsongrass, blackberry, Macartney rose, winged elm, sugarberry, osage orange, broomsedge bluestem, and hawthorns.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The wetness and the clayey texture of the surface layer and the subsoil restrict the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive

preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting 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, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from 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 do 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 to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or 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 that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIe. The woodland ordination symbol is 4C.

FuA—Fluvaquents, ponded

This very deep, very poorly drained soil is in swales, sloughs, oxbows, beaver ponds, and other shallow depressions on flood plains of streams draining 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 50 acres in size.

Important properties of the Fluvaquents—

Permeability: Slow
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the 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, for brief periods from December through April

Included in mapping are a few small areas of Eunola, Kinston, Mooreville, Una, and Urbo soils. The moderately well drained Eunola and Mooreville soils are in the slightly higher positions on the edges of depressions. The poorly drained Kinston soils are in slightly higher positions than the Fluvaquents and are not subject to ponding. The poorly drained Una soils and the somewhat poorly drained Urbo soils are in positions similar to those of the Fluvaquents and are clayey in the subsoil and substratum. Included soils make up about 5 percent of the map unit. Individual areas are generally less than 1 acre in size.

Most areas of this map unit are used for woodland and wildlife habitat.

This map unit is not suited to cultivated crops, pasture, or hay. Wetness, ponding, and the flooding are severe limitations affecting these uses.

This map unit is suited to the production of baldcypress and green ash. Other species that commonly grow in areas of this map unit include black gum, overcup oak, 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 affecting timber management 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 ruts and compaction. Using low-pressure ground equipment results in less 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 by increasing the number of trees planted. Plant competition can prevent adequate natural or artificial reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is not suited to most urban uses. The ponding, wetness, and the frequent flooding are severe limitations affecting 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 to support habitat

for openland wildlife and woodland wildlife and has good potential to support habitat for wetland wildlife. Habitat for openland and woodland wildlife can be improved by planting appropriate vegetation, maintaining the existing plant cover, and promoting the natural establishment of desirable plants. Habitat for wetland wildlife can be improved by providing more areas of open water for waterfowl and furbearers and by planting mast-producing trees.

The capability subclass is VIIw. This unit has not been assigned a woodland ordination symbol.

GoA—Goldsboro loamy fine sand, 0 to 2 percent slopes

This very deep, moderately well drained soil is on low stream terraces that are parallel to large streams in the southern part of the county. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 40 to about 100 acres in size.

Typically, the surface layer is dark grayish brown loamy fine sand about 6 inches thick. The subsurface layer extends to a depth of 11 inches. It is pale brown loamy fine sand. The subsoil extends to a depth of 72 inches. In the upper part, it is light olive brown sandy clay loam that has grayish and brownish mottles. In the next part, it is light brownish gray sandy clay loam that has reddish and brownish mottles. In the lower part, it is gray sandy clay loam that has reddish and brownish mottles.

Important properties of the Goldsboro soil—

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

Included in mapping are a few small areas of Dogue, Lynchburg, Myatt, and Ocilla soils. Dogue soils are in the slightly lower positions and are clayey in the upper part of the subsoil. The somewhat poorly drained Lynchburg and Ocilla soils are in slightly lower, less convex positions than those of the Goldsboro soils. Ocilla soils have thick, sandy surface and subsurface layers. The poorly drained Myatt soils are in shallow depressions. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. Wetness is a moderate limitation. Some areas may require surface drainage or grading to facilitate the removal of excess water. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Shallow ditches can help to remove excess surface water. Using minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

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

This map unit is well suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include sweetgum, yellow-poplar, cherrybark oak, 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 poison ivy, greenbrier, panicums, wax myrtle, water oak, and sweetgum.

This map unit has moderate limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting activities should be planned for seasons when the soil is dry. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation or controlled burning.

This map unit is suited to most urban uses. It has moderate limitations affecting building sites and local roads and streets and has severe limitations affecting most kinds of sanitary facilities. The main limitations are the moderate permeability and the wetness. Septic tank absorption fields may not

function properly during rainy periods because of the moderate permeability and the seasonal high water table. Enlarging the size of the absorption field and using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improve the performance of a septic system.

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

The capability subclass is IIw. The woodland ordination symbol is 10W.

GrA—Gritney loamy fine sand, 0 to 2 percent slopes

This very deep, moderately well drained soil is on summits of broad ridges in the northeastern part of the county. 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 brown loamy fine sand about 5 inches thick. The subsoil extends to a depth of 65 inches. It is dark yellowish brown clay loam and brown clay in the upper part, reddish brown clay that has grayish and brownish mottles in the next part, and mottled grayish, reddish, and brownish clay loam in the lower part. The substratum to a depth of 80 inches is mottled grayish, brownish, and reddish sandy clay loam.

Important properties of the Gritney soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1½ to 3 feet from January through March
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Conecuh, Luverne, and Marvyn soils. Conecuh and Luverne soils are in landscape positions similar to those of the Gritney soils. Conecuh soils have a high shrink-swell potential. Luverne soils are well drained and are reddish in the upper part of the subsoil. Marvyn soils are on the slightly higher knolls and are loamy throughout. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. The main limitations are wetness and the low fertility. Shallow ditches can help to remove excess surface water. Returning crop residue to the soil and growing winter cover crops minimize crusting, help to maintain tilth, and increase the rate of water infiltration. Most crops respond well to systematic applications of lime and fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. Wetness is a moderate limitation. Excess surface water can be removed by shallow ditches. 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 soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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, wax myrtle, sweetgum, water oak, and flowering dogwood.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. The low strength restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate

reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has moderate limitations affecting building sites and has severe limitations affecting local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, wetness, and low strength on 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 low shrink-swell potential. Roads and streets should be designed to offset the limited ability of the 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 map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIw. The woodland ordination symbol is 8A.

GrB—Gritney fine sandy loam, 2 to 5 percent slopes

This very deep, moderately well drained soil is on shoulder slopes and side slopes of broad ridges in the northeastern part of the county. 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 extends to a depth of 45 inches. It is reddish brown clay in the upper part, yellowish red clay that has grayish and brownish mottles in the next part, and dark red clay that has grayish and brownish mottles in the lower part. The substratum to a depth of 72 inches is mottled grayish, brownish, and reddish sandy clay and sandy clay loam.

Important properties of the Gritney soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 1/2 to 3 feet from January through March
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Conecuh, Luverne, and Marvyn soils. Conecuh and Luverne soils are in landscape positions similar to those of the Gritney soils. Conecuh soils have a high shrink-swell potential. Luverne soils are well drained and are reddish in the upper part of the subsoil. Marvyn soils are on narrow ridges and small knolls and are loamy throughout. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to cultivated crops. The main limitations are a moderate hazard of erosion and the low fertility. Using a resource management system that includes terraces and diversions, stripcropping, contour tillage, conservation tillage, and crop residue management helps to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration. Most crops respond well to systematic applications of lime and fertilizer.

This map unit is well suited to pasture and hay. Erosion is a hazard if the surface is left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. 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 soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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, wax myrtle, sweetgum, water oak, and flowering dogwood.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. The low strength restricts the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth. Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.

This map unit is poorly suited to most urban uses. It has moderate limitations affecting building sites and has severe limitations affecting local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, wetness, and low strength on 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 low shrink-swell potential. Roads and streets should be designed to offset the limited ability of the 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 map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIIe. The woodland ordination symbol is 8A.

HnB—Hannon clay loam, 1 to 3 percent slopes

This very deep, moderately well drained soil is on summits of broad ridges in the Blackland Prairie. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 20 to 100 acres in size.

Typically, the surface layer is dark yellowish brown clay loam about 3 inches thick. The subsoil extends to a depth of 45 inches. It is red silty clay that has grayish mottles in the upper part; light olive brown silty clay that has reddish, brownish, and grayish mottles in the next part; and olive silty clay loam that has grayish mottles in the lower part. The substratum to a depth of 65 inches is pale olive and light olive gray clay loam. The subsoil and substratum have concretions and soft masses of calcium carbonate throughout.

Important properties of the Hannon soil—

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

Included in mapping are a few small areas of Conecuh, Oktibbeha, and Sumter soils. Conecuh soils are on the slightly higher knolls and do not have alkaline materials within the solum. Oktibbeha soils are in positions similar to those of the Hannon soil and do not have concretions or soft masses of calcium carbonate within a depth of 30 inches. The moderately deep Sumter soils are in scattered areas and are alkaline throughout. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are poor tilth and a moderate hazard of erosion. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry.

Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Returning all crop residue to the soil improves tilth, reduces the extent of crusting, and increases the available water capacity.

This map unit is well suited to pasture and hay. Tall fescue, dallisgrass, Johnsongrass, and bahiagrass are the most 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 fertility and increase the production of forage.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, eastern redcedar, sugarberry, and sweetgum. 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, bluestems, wax myrtle, blackberry, greenbrier, poison ivy, common persimmon, sweetgum, redbud, redcedar, and hawthorns.

This map unit has moderate and severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting 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. Support beams should be used to maintain the stability of the cutbanks. 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 do 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 to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIe. The woodland ordination symbol is 7C.

HnC2—Hannon clay, 3 to 5 percent slopes, eroded

This very deep, moderately well drained soil is on shoulder slopes and side slopes in the Blackland Prairie. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. The mixing has been caused by tillage. Some areas have a few rills and shallow gullies. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 20 to 100 acres in size.

Typically, the surface layer is brown clay about 2 inches thick. The subsoil extends to a depth of 65 inches. In the upper part, it is yellowish red silty clay that has brownish mottles. In the next part, it is olive silty clay that has grayish and brownish mottles. In the lower part, it is olive silty clay loam that has grayish mottles. The middle and lower parts of the subsoil have concretions and soft masses of calcium carbonate.

Important properties of the Hannon soil—

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

Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Conecuh, Oktibbeha, and Sumter soils. Conecuh soils are on the slightly higher parts of slopes and do not have alkaline materials within the solum. Oktibbeha soils are in positions similar to those of the Hannon soil and do not have concretions or soft masses of calcium carbonate within a depth of 30 inches. The moderately deep Sumter soils are in scattered areas and are alkaline throughout. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay. Tall fescue, dallisgrass, Johnsongrass, and bahiagrass are the most commonly grown grasses. 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 map unit is suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, eastern redcedar, sugarberry, and sweetgum. 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, bluestems, wax myrtle, blackberry, greenbrier, poison ivy, common persimmon, redbud, redcedar, and hawthorns.

This map unit has moderate and severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting 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. Support beams should be used to maintain the stability of the cutbanks. 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 do 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 to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIIe. The woodland ordination symbol is 7C.

HoD2—Hannon-Maytag complex, 3 to 8 percent slopes, eroded

This map unit consists of very deep, moderately well drained Hannon and Maytag soils. 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. 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 Hannon soil makes up about 50 percent of the map unit, and the Maytag soil makes up about 35 percent. Slopes are generally long and smooth but may be short and complex. Individual areas are irregular in shape. They range from 100 to 500 acres in size.

The Hannon soil commonly is on the upper parts of slopes. Typically, the surface layer is dark brown clay loam about 4 inches thick. The subsoil extends to a depth of 72 inches. It is red and yellowish red clay in the upper part, brownish yellow silty clay that has grayish mottles in the next part, and olive yellow and pale olive silty clay that has grayish mottles in the lower part. The middle and lower parts of the subsoil have concretions and soft masses of calcium carbonate.

Important properties of the Hannon soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

The Maytag soil commonly is on summits of narrow ridges and on the lower parts of slopes but may occur throughout the unit. Typically, the surface layer is very dark grayish brown silty clay loam about 7 inches thick. The subsurface layer is brown silty clay loam to a depth of 10 inches. The subsoil is silty clay and extends to a depth of 60 inches. It is olive yellow in the upper part and mottled light olive gray and olive yellow in the lower part. The profile has concretions and soft masses of calcium carbonate throughout.

Important properties of the Maytag soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Faunsdale, Sucarnoochee, Sumter, and Vaiden soils and a few small areas of gullied land. The somewhat poorly drained Faunsdale soils are on footslopes. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains. Sumter soils are in positions similar to those of the Maytag soil and are moderately deep to bedrock. Vaiden soils are on the upper parts of slopes and do not have alkaline materials within the solum. Included soils make up about 15 percent of the map unit. 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 cultivated crops, pasture, or hay.

This map unit is poorly suited to cultivated crops. The main limitations are poor tilth and erosion. Erosion is a severe hazard if 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. Clods form if the soils are tilled when they are too wet or too dry. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Returning all crop residue to the soils improves tilth, reduces the extent of crusting, and increases the available water capacity.

This map unit is suited to pasture and hay. Tall fescue, dallisgrass, and Johnsongrass are the most commonly grown grasses. Erosion is a severe hazard if the soils are left bare during the establishment of pasture. 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 soils in good condition.

Areas of the Hannon soil are suited to loblolly pine. Because of the intermingling with the Maytag soil, however, onsite delineation of the soil boundaries is recommended before pine trees are planted. 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. Areas of the Maytag soil are suited to eastern redcedar. The Maytag soil is not suited to pine trees because it is alkaline below the surface layer. 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, redcedar, redbud, sumac, winged elm, and sugarberry.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. Harvesting and management activities should be planned for seasons when the soils are dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed burning.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very slow permeability, the high shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. 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 do 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 to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or 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 (fig. 7). Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IVe. The woodland ordination symbol is 7C in areas of the Hannon soil and 4C in areas of the Maytag soil.

HsE—Hannon-Sumter complex, 5 to 12 percent slopes

This map unit consists of the very deep, moderately well drained Hannon soil and the moderately deep, well drained Sumter soil. It is on side slopes and narrow ridges in the Blackland Prairie. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. The Hannon soil makes up about 45 percent of the map unit, and the Sumter soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

The Hannon soil is on shoulder slopes and on the upper parts of side slopes. Typically, the surface layer is brown clay loam about 4 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish red silty clay in the upper part, light olive brown silty clay that has brownish and grayish mottles in the next part, and olive silty clay that has grayish and brownish mottles in the lower part. The middle and lower parts of the subsoil have concretions and soft masses of calcium carbonate.

Important properties of the Hannon soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

The Sumter soil commonly is on the summits of narrow ridges and the lower parts of side slopes but may occur throughout the unit. Typically, the surface layer is grayish brown silty clay loam about 4 inches thick. The subsoil extends to a depth of 34 inches. It is brown silty clay loam in the upper part, light olive brown silty clay loam in the next part, and olive yellow silty clay in the lower part. The substratum to a depth of 72 inches is weathered, thinly bedded strata of fossil oyster shell, chalk, and marl.

Important properties of the Sumter soil—

Permeability: Slow
Available water capacity: Moderate

Figure 7.—An area of Hannon-Maytag complex, 3 to 8 percent slopes, eroded, that is intensively managed as habitat for bobwhite quail. Narrow strips of Egyptian wheat and bicolor lespedeza scattered across the landscape provide food and cover. Prescribed burning helps to maintain open areas and encourages the growth of navtive seed-producing plants, such as showy partridgepea and tick clover.

Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 20 to 40 inches
Depth of the root zone: 20 to 40 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Conecuh, Kinston, Maytag, Oktibbeha, and Una soils and a few small areas of gullied land. Conecuh soils are on the upper parts of slopes and do not have alkaline materials within the solum. The poorly drained Kinston and Una soils are on narrow flood plains. Maytag soils are in positions similar to those of the Sumter soil and do not have bedrock within a depth of 60 inches. Oktibbeha soils are in positions similar to those of the Hannon soil and do not have concretions and soft masses of calcium carbonate within a depth of 30 inches. Included soils make up about 20 percent of the map unit. 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.

This map unit is not suited to cultivated crops. The main limitations are poor tilth, the complex slopes, and erosion. Erosion is a severe hazard if 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. Clods form if the soils are tilled when they are too wet or too dry. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Returning all crop residue to the soils improves tilth, reduces the extent of crusting, and increases the available water capacity.

This map unit is suited to pasture and poorly suited to hay. The main limitations are erosion and the short, complex slopes if the soils are used for hay. Erosion is

a severe hazard if the soils are left bare during the establishment of pasture. 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 soils in good condition.

Areas of the Hannon soil are suited to loblolly pine. Because of the intermingling with the Sumter soil, however, onsite delineation of the soil boundaries is recommended before pine trees are planted. 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. Areas of the Sumter soil are suited to eastern redcedar. The Sumter soil is not suited to pine trees because it is alkaline below the surface layer. 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, sweetgum, redbud, winged elm, redcedar, and sugarberry.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. Also, erosion is a hazard. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. Harvesting and management activities should be planned for seasons when the soils are dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed burning. Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings. Reseeding all disturbed areas with adapted grasses and legumes helps to reduce the hazard of erosion and the siltation of streams.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the depth to bedrock in areas of the Sumter soil, the very slow permeability in areas of the Hannon soil, the shrink-swell potential, and low strength on sites for roads and streets. If excavations are made in areas of Hannon soil, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from 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 do 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 to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. 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 that provide areas of open water for waterfowl and furbearers.

The capability subclass is VIe. The woodland ordination symbol is 7C in areas of the Hannon soil and 4C in areas of the Sumter soil.

KmA—Kinston-Mooreville complex, 0 to 1 percent slopes, frequently flooded

This map unit consists of the very deep, poorly drained Kinston and moderately well drained Mooreville soils on flood plains of streams draining the Coastal Plain. These soils are subject to frequent flooding for brief periods several times each year. The soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The Kinston soil makes up about 45 percent of the map unit, and the Mooreville soil makes up about 40 percent. Individual areas are long and narrow. They range from 10 to more than 1,000 acres in size.

The Kinston soil is in flat to concave positions, generally at the lowest elevations on the flood plain. Typically, the surface layer is dark gray and gray fine sandy loam about 7 inches thick. The subsoil extends to a depth of 58 inches. It is grayish sandy clay loam that has brownish and reddish mottles. The

substratum to a depth of 80 inches is light gray loamy fine sand that has brownish mottles.

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
Depth of the 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, for brief periods from December through April

The Mooreville soil is on the higher, more convex parts of the flood plain. Typically, the surface layer is dark grayish brown fine sandy loam about 10 inches thick. The subsoil extends to a depth of 52 inches. It is yellowish brown loam that has grayish mottles in the upper part; yellowish brown sandy clay loam that has reddish, brownish, and grayish mottles in the next part; and light olive brown sandy clay loam that has grayish and brownish mottles in the lower part. The substratum to a depth of 80 inches is olive yellow and light yellowish brown sandy loam that has brownish and grayish mottles.

Important properties of the Mooreville soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1½ to 3 feet from January through March
Shrink-swell potential: Moderate
Flooding: Frequent, for brief periods from December through April

Included in mapping are a few small areas of Bigbee, Eunola, Riverview, and Toccoa soils and Fluvaquents. Bigbee, Riverview, and Toccoa soils are on high parts of the natural levee adjacent to stream channels. Bigbee soils are sandy throughout. Riverview and Toccoa soils are well drained. The moderately well drained Eunola soils are on the slightly higher knolls and have a more strongly developed subsoil than the Mooreville and Kinston soils. The very poorly drained Fluvaquents are in shallow depressions. The included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

Most areas of this map unit are wooded and are used for wildlife habitat (fig. 8). 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 the wetness. If areas are used for pasture or hay, grasses that tolerate the wet soil conditions should be selected. Common bermudagrass and bahiagrass are suitable. Shallow ditches can help to remove excess water from the surface.

This map unit is suited to loblolly pine and hardwoods. Species of hardwood that commonly grow in areas of this map unit include sweetgum, American sycamore, yellow-poplar, willow oak, water oak, swamp chestnut oak, and green ash. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90 in areas of the Kinston soil and 110 in areas of the Mooreville 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 in areas of the Kinston soil and 3.1 cords per acre per year in areas of the Mooreville soil. The understory vegetation consists mainly of sweetgum, blackgum, water oak, poison ivy, Alabama supplejack, panicums, sweetbay, green ash, and red maple.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soils are dry. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soils and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on beds, or it can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is not suited to most urban uses. The flooding and wetness are severe limitations affecting most uses. Buildings in areas of these soils should be

Figure 8.—An area of the Kinston soil in Kinston-Mooreville complex, 0 to 1 percent slopes, frequently flooded. The butressed tree trunks, exposed roots, and sparse understory vegetation indicate that the seasonal high water table is at or near the surface for long periods.

constructed on pilings or on well-compacted fill material that elevates the building above the expected level of flooding.

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

The capability subclass is Vw. The woodland ordination symbol is 9W in areas of the Kinston soil and 12W in areas of the Mooreville soil.

LcD—Lucy-Luverne complex, 5 to 15 percent slopes

This map unit consists of the very deep, well drained Lucy and Luverne soils. It is on hillslopes in the uplands. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. Although the composition of this unit varies between mapped areas, mapping was controlled well enough to evaluate the soils for the expected uses. The Lucy and similar soils makes up about 45 percent of the map unit, and the Luverne and similar soils makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

The Lucy and similar soils are generally on the upper parts of slopes. Typically, the surface layer is

brown loamy fine sand about 7 inches thick. The subsurface layer is loamy fine sand and extends to a depth of 31 inches. It is brownish yellow in the upper part and light yellowish brown in the lower part. The subsoil to a depth of 60 inches is red sandy clay loam that has brownish and reddish mottles.

Important properties of the Lucy soil—

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

The Luverne and similar soils are generally on the lower parts of slopes. Typically, the surface layer is brown loamy fine sand about 4 inches thick. The subsurface layer extends to a depth of 9 inches. It is light yellowish brown loamy fine sand. The subsoil extends to a depth of 45 inches. It is red sandy clay in the upper part and strong brown clay that has reddish, brownish, and grayish mottles in the lower part. The substratum to depth of 60 inches is mottled reddish, brownish, and grayish sandy clay loam.

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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Blanton, Conecuh, Cowarts, Gritney, Kinston, Springhill, and Troup soils. Blanton and Troup soils are in positions similar to those of the Lucy soil. They have sandy surface and subsurface layers with a combined thickness of 40 to 80 inches. The moderately well drained Conecuh and Gritney soils are on the lower parts of slopes. Conecuh soils have a high shrink-swell potential. Gritney soils have brownish colors in the subsoil. Cowarts and Springhill soils are on the upper parts of slopes and are loamy throughout. The poorly drained Kinston soils are on narrow flood plains. Included soils make up about 20 percent of mapped areas. Individual areas are generally less than 5 acres in size.

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

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

This map unit is suited to pasture and poorly suited to hay. Coastal bermudagrass and bahiagrass are suitable grasses. The main limitations are the droughtiness of the Lucy soil, the low fertility, and the complex slopes. Erosion is a hazard if the soils are left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

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

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate in areas of Lucy soil, and plant competition in areas of Luverne soil. The sandy texture of the surface layer in areas of Lucy soil restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned for seasons when the soils are moist. The moderate seedling mortality rate in areas of the Lucy soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. In areas of the Luverne soil, the low strength of the clayey subsoil restricts the use of equipment when the soil is wet. Low-pressure ground equipment results in less

damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. Slope is a severe limitation affecting most uses. Other limitations include the moderately slow permeability, moderate shrink-swell potential, and the low strength of the Luverne soil.

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

The capability subclass is VIs in areas of the Lucy soil and VIe in areas of the Luverne soil. The woodland ordination symbol is 8S in areas of the Lucy soil and 9C in areas of the Luverne soil.

LsB—Lucy-Luverne-Springhill complex, 1 to 5 percent slopes

This map unit consists of the very deep, well drained Lucy, Luverne, and Springhill soils. It is on summits of narrow ridges in the uplands. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. Although the composition of this unit varies between mapped areas, mapping was controlled well enough to evaluate the soils for the expected uses. The Lucy and similar soils make up about 35 percent of the map unit, the Luverne soil makes up about 30 percent, and the Springhill soil makes up about 25 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

The Lucy and similar soils are generally on convex knolls and on shoulder slopes. Typically, the surface layer is brown loamy fine sand about 5 inches thick. The subsurface layer is loamy fine sand and extends to a depth of 39 inches. It is yellowish brown in the upper part, brownish yellow in the next part, and light yellowish brown in the lower part. The subsoil to a depth of 72 inches is red and yellowish red sandy clay loam that has brownish mottles.

Important properties of the Lucy soil—

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

The Luverne and similar soils are generally on the lower parts of slopes and in saddles. Typically, the surface layer is yellowish brown loamy sand about 9 inches thick. The subsoil extends to a depth of 50 inches. It is red clay 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 that has brownish and grayish 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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

The Springhill and similar soils are generally on the crests of ridges. Typically, the surface layer is brown loamy sand about 7 inches thick. The subsurface layer extends to a depth of 14 inches. It is yellowish brown loamy sand. The subsoil extends to a depth of 72 inches. It is red sandy clay loam in the upper part and red sandy loam in the lower part.

Important properties of the Springhill soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet

Shrink-swell potential: Low
Flooding: None

Included in mapping are small areas of Blanton, Troup, and Wagram soils. Also included are small areas that have slopes of more than 5 percent. Blanton, Troup, and Wagram soils are in positions similar to those of the Lucy soil. Blanton and Troup soils have sandy surface and subsurface layers with a combined thickness of more than 40 inches. Wagram soils have sandy surface and subsurface layers with a combined thickness of 20 to 40 inches and have a brownish subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. The main limitations are the low available water capacity of the Lucy soil and low fertility. The leaching of plant nutrients is also a limitation in areas of Lucy soil. Frequent, light applications of nitrogen are necessary to maintain the productivity of the grasses in these areas. Erosion is a hazard if the soils are left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applying lime and fertilizer on the basis of soil testing increases the availability of plant nutrients and maximizes productivity.

This map unit is well suited to loblolly pine and longleaf pine. Other species that commonly grow in areas of this map unit include shortleaf pine, southern red oak, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90 in areas of the Luverne soil and 85 in areas of both the Lucy and Springhill soils. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year in areas of the Luverne soil and 2.1 cords per acre per year in areas of both the Lucy and Springhill soils. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, huckleberry, pricklypear cactus, muscadine grape, poison oak, brackenfern, yellow jessamine, blackberry, flowering dogwood, and common persimmon.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate in areas of the Lucy soil, and plant competition in areas of the Luverne soil. The sandy texture of the surface layer in areas of Lucy soil restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned for seasons when the soil is moist. The moderate seedling mortality rate in areas of the Lucy soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. In areas of the Luverne soil, the low strength of the clayey subsoil restricts the use of equipment when the soil is wet. Low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is suited to most urban uses. The Lucy and Springhill soils have no significant limitations affecting these uses. The sandy texture of the Lucy soil and low fertility, however, are management concerns. The Luverne soil has moderate limitations affecting building sites and has severe limitations affecting local roads and streets and most kinds of sanitary facilities. The main limitations in areas of the Luverne soil are the moderately slow permeability, the moderate shrink-swell potential, and low strength on sites for local roads and streets. Buildings and septic tank absorption fields should be located in areas of the Lucy and Springhill soils if possible.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. The low available water capacity in areas of the Lucy soil and the low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat for wildlife can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed

burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIs in areas of the Lucy soil, IIIe in areas of the Luverne soil, and IIe in areas of the Springhill soil. The woodland ordination symbol is 8S in areas of the Lucy soil, 9C in areas of the Luverne soil, and 9A in areas of the Springhill soil.

LuB—Luverne sandy loam, 1 to 5 percent slopes

This very deep, well drained soil is on summits of narrow ridges in the uplands. Slopes are long and smooth. Individual areas are irregular in shape. They range from 5 to 100 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam about 4 inches thick. The subsoil extends to a depth of 45 inches. It is yellowish red sandy clay in the upper part, red clay that has brownish mottles in the next part, and red sandy clay loam that has reddish and brownish mottles in the lower part. The substratum to a depth of 72 inches is stratified red, reddish yellow, and pale brown fine sandy loam.

Important properties of the Luverne soil—

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

Included in mapping are a few small areas of Conecuh, Cowarts, Lucy, Orangeburg, and Springhill soils. Also included are soils that have slopes of more than 5 percent. Conecuh soils are in slightly lower positions than the Luverne soil and have a high shrink-swell potential. Cowarts, Lucy, Orangeburg, and Springhill soils are on small knolls. Cowarts, Orangeburg, and Springhill soils are loamy throughout. Lucy soils have thick, sandy surface and subsurface layers. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to cultivated crops. The main limitations are the low fertility and a 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 map unit is well suited to pasture and hay. It has few limitations affecting these uses. Erosion is a hazard if the soil is left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. 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 map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of greenbrier, poison ivy, flowering dogwood, wax myrtle, little bluestem, huckleberry, American beautyberry, muscadine grape, common persimmon, and panicums.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. When the soil is wet, the low strength of the clayey subsoil restricts the use of equipment. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is suited to most urban uses. It has moderate limitations affecting building sites and has severe limitations affecting 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 on 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 do 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 map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIIe. The woodland ordination symbol is 9C.

LuD2—Luverne sandy loam, 5 to 15 percent slopes, eroded

This very deep, well drained soil is on hillslopes in the uplands. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. In some places, all of the original surface layer has been removed. Some areas have a few rills and gullies. Slopes are generally short and complex, but some are long and smooth. Individual areas are irregular in shape. They range from 20 to more than 250 acres in size.

Typically, the surface layer is brown sandy loam about 3 inches thick. The subsoil extends to a depth of 48 inches. It is red clay in the upper part and yellowish red clay loam that has brownish and yellowish mottles in the lower part. The substratum to a depth of 72 inches is mottled reddish, brownish, and grayish sandy clay loam.

Important properties of the Luverne soil—

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

Included in mapping are a few small areas of Conecuh, Cowarts, Kinston, Lucy, and Springhill soils. The moderately well drained Conecuh soils are on the lower parts of slopes and have a high shrink-swell potential. Cowarts and Springhill soils are on the upper parts of slopes and are loamy throughout. The poorly drained Kinston soils are on narrow flood plains. Lucy soils are on shoulder slopes and have thick, sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is suited to pasture and poorly suited to hay. The short, complex slopes restrict the use of equipment. Erosion is a hazard if the surface is left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve fertility and increase the production of forage.

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

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. Also, erosion is a hazard. Exposing the surface by removing ground cover increases the hazard of

erosion. Mulching, seeding, and constructing diversions can help to control erosion on roads, landings, and skid trails. The low strength of the clayey subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

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

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

The capability subclass is VIe. The woodland ordination symbol is 9C.

LyA—Lynchburg fine sandy loam, 0 to 2 percent slopes, rarely flooded

This very deep, somewhat poorly drained soil is on low terraces that parallel major streams throughout the county. Flooding is rare but can occur under unusual weather conditions. Slopes are long and smooth. Individual areas are generally oblong, but some are broad. Areas of this soil range from 10 to 500 acres in size.

Typically, the surface layer is dark gray fine sandy loam about 10 inches thick. The subsurface layer extends to a depth of 15 inches. It is light yellowish brown fine sandy loam. The subsoil extends to a depth of 80 inches. It is light olive brown sandy clay loam in the upper part, light brownish gray clay loam that has brownish and reddish mottles in the next part, and light brownish gray and gray sandy clay loam that has brownish and reddish mottles in the lower part.

Important properties of the Lynchburg soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of $^1/_2$ to $1^1/_2$ feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Dogue, Goldsboro, Ocilla, and Pelham soils. The moderately well drained Dogue and Goldsboro soils are on the slightly higher knolls. Ocilla soils are on the slightly higher knolls and have thick, sandy surface and subsurface layers. The poorly drained Pelham soils are in shallow depressions and have thick, sandy surface and subsurface layers. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to cultivated crops. The main limitations are the low fertility and wetness. Planting may be delayed in the spring because of the wetness. Shallow ditches can help to remove excess water from the surface. 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. Applying lime and fertilizer on the basis of soil testing increases the availability of plant nutrients and maximizes productivity.

This map unit is suited to pasture and hay. Wetness is the main limitation. Grasses that tolerate the wet soil conditions should be selected. Shallow ditches can help to remove excess water from the surface. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods minimize compaction, help to maintain productivity, and help to keep the pasture in good condition. Applying lime and fertilizer on the basis of soil testing increases the availability of plant nutrients and maximizes productivity.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include sweetgum, water oak, and yellow-poplar. 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 longleaf uniola, poison ivy, wax myrtle, blackgum, sweetgum, and water oak.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. Harvesting operations should be planned for seasons when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. The moderate 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 hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by site preparation, herbicides, or prescribed burning.

This map unit is poorly suited to most urban uses. The main limitations are the flooding and wetness. Pilings or mounds can elevate buildings above the expected level of flooding. Because of the seasonal high water table, a drainage system is needed if buildings are constructed. Septic tank absorption fields do 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 to support habitat for openland wildlife and woodland wildlife and has fair potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is IIw. The woodland ordination symbol is 9W.

MaA—Malbis fine sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on summits of broad ridges in the western part of the county. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 20 to 200 acres in size.

Typically, the surface layer is brown fine sandy loam about 8 inches thick. The subsurface layer extends to a depth of 13 inches. It is light yellowish brown fine sandy loam. The subsoil extends to a depth of 80 inches. It is yellowish brown fine sandy loam and sandy clay loam in the upper part; yellowish brown sandy clay loam that has reddish, brownish, and grayish mottles and plinthite in the next part; and strong brown sandy clay loam that has brownish and grayish mottles and plinthite in the lower part.

Important properties of the Malbis soil—

Permeability: Moderately slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of $2^1/_2$ to 4 feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Bama and Luverne soils. Also included are soils that have slopes of more than 2 percent. Bama soils are on the slightly higher, convex knolls; have a reddish subsoil; and do not have significant accumulations of plinthite in the subsoil. Luverne soils are on the lower parts of

slopes and are clayey in the upper part of the subsoil. Included soils make up about 5 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. It has few limitations affecting this use, although the low fertility is a management concern. The surface layer 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 minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve and maintain tilth and the content of organic matter. Crops respond well to systematic applications of lime and fertilizer.

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

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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 95. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year. The understory vegetation consists mainly of little bluestem, flowering dogwood, poison ivy, greenbrier, yellow jessamine, panicums, sweetgum, water oak, and hickory.

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

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

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability class is I. The woodland ordination symbol is 10A.

MnA—Marvyn sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on summits of broad ridges in the northern part of the county. Slopes are generally long and smooth. Individual areas are generally broad. They range from 10 to 250 acres in size.

Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil extends to a depth of 47 inches. It is yellowish brown sandy clay loam in the upper part and yellowish brown sandy clay loam that has reddish and brownish mottles in the lower part. The substratum to a depth of 65 inches is thinly stratified yellowish brown and strong brown sandy loam and light gray sandy clay loam.

Important properties of the Marvyn soil—

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

Included in mapping are a few small areas of Blanton, Cowarts, Luverne, and Uchee soils. Also included are soils that are similar to the Marvyn soil, except that they have more than 5 percent plinthite in the lower part of the subsoil. Blanton and Uchee soils are on the slightly higher, convex knolls and have

thick, sandy surface and subsurface layers. Cowarts soils are in positions similar to those of the Marvyn soil and have a solum that is less than 40 inches thick. Luverne soils are on the lower parts of slopes and are clayey in the upper part of the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. It has few limitations affecting this use, although the low fertility is a management concern. The surface layer 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 minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve and maintain tilth and the content of organic matter. Crops respond well to systematic applications of lime and fertilizer.

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

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

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

This map unit is suited to most urban uses. It has slight limitations affecting building sites and local roads and streets and has moderate or severe limitations affecting most kinds of sanitary facilities. The main limitation is the moderately slow permeability. Septic tank absorption fields do not function properly during rainy periods because of the moderately slow permeability. Enlarging the size of the absorption field helps to overcome this limitation.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is I. The woodland ordination symbol is 9A.

MnB—Marvyn loamy sand, 2 to 5 percent slopes

This very deep, well drained soil is on side slopes of ridges in the northern part of the county. Slopes are generally long and smooth but may be short and complex. Individual areas are irregular in shape. They range from 10 to 100 acres in size.

Typically, the surface layer is dark brown loamy sand about 6 inches thick. In some areas, however, it is sandy loam. The subsurface layer extends to a depth of 9 inches. It is yellowish brown and dark brown sandy loam. The subsoil extends to a depth of 50 inches. In the upper part, it is yellowish brown sandy loam and sandy clay loam. In the next part, it is yellowish brown sandy clay loam that has brownish mottles. In the lower part, it is brownish yellow sandy clay loam that has brownish and reddish mottles. The substratum to a depth of 62 inches is mottled reddish, brownish, and grayish sandy clay loam.

Important properties of the Marvyn soil—

Permeability: Moderately slow
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet

Figure 9.—An area of Marvyn loamy sand, 2 to 5 percent slopes. This soil is well suited to coastal bermudagrass and bahiagrass hay.

Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Blanton, Cowarts, Luverne, Springhill, and Uchee soils. Also included are soils that have slopes of less than 2 percent or more than 5 percent and soils that are similar to the Marvyn soil, except that they have more than 5 percent plinthite in the lower part of the subsoil. Blanton and Uchee soils are on shoulder slopes and have thick, sandy surface and subsurface layers. Cowarts and Springhill soils are on the upper parts of slopes. The solum of the Cowarts soil is less than 40 inches thick. Springhill soils have a reddish subsoil. Luverne soils are on the lower parts of slopes and are clayey in the upper part of the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. The main limitations are the low fertility and a 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. Installing drop-inlet structures in grassed waterways helps to prevent gullying. Returning all crop residue to the soil or regularly adding other organic matter improves fertility and helps to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass (fig. 9). The main limitations are the low fertility and a moderate hazard of erosion. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine and

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

This map unit has few limitations affecting timber management. Soil compaction and plant competition, however, are minor management concerns. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control initial plant competition and facilitate mechanical planting. After logging, the establishment of a permanent plant cover on roads and landings helps to reduce the hazard of erosion and siltation of streams.

This map unit is suited to most urban uses. It has slight limitations affecting building sites and local roads and streets and has moderate or severe limitations affecting most kinds of sanitary facilities. The main limitation is the moderately slow permeability. Septic tank absorption fields do not function properly during rainy periods because of the moderately slow permeability. Enlarging the size of the absorption field helps to overcome this limitation.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIe. The woodland ordination symbol is 9A.

MtA—Maytag silty clay, 0 to 2 percent slopes

This very deep, moderately well drained soil is on summits of broad ridges in the uplands of the Blackland Prairie. Slopes are long and smooth. Individual areas are irregular in shape. They range from 15 to 150 acres in size.

Typically, the surface layer is very dark grayish brown silty clay about 5 inches thick. The subsoil extends to a depth of 65 inches. It is olive clay in the upper part, pale olive clay that has brownish and grayish mottles in the next part, and mottled olive, grayish, and brownish clay in the lower part. The profile has soft masses and concretions of calcium carbonate throughout.

Important properties of the Maytag soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Faunsdale, Hannon, Sucarnoochee, and Vaiden soils. Also included are areas of Maytag soils that have slopes of more than 2 percent. The somewhat poorly drained Faunsdale soils are in slightly concave positions around the heads of drainageways. Hannon soils are in slightly higher, more concave positions than those of the Maytag soil, have reddish colors, and are acid in the upper part of the subsoil. The somewhat poorly drained Sucarnoochee soils are on narrow flood plains and are subject to frequent flooding. Vaiden soils are in slightly lower positions than those of the Maytag soil and are acid in the upper part of the solum. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are poor tilth and the clayey surface textures. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Returning all crop residue to the soil improves tilth, reduces the extent of crusting, and increases the available water capacity. Restricting field work to dry periods minimizes the ruts and compaction caused by the high content of clay in the soil. Wetness may delay planting of early-season crops in some years. Proper row arrangement, field ditches, and vegetated outlets help to remove excess water.

This map unit is well suited to pasture and hay. It

has few limitations affecting these uses. Tall fescue, dallisgrass, Johnsongrass, and bahiagrass are the most commonly grown grasses. Restricting field work to dry periods minimizes the ruts and compaction caused by the high content of clay in the soil. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods minimize compaction, help to maintain productivity, and help to keep the pasture in good condition.

This map unit is suited to eastern redcedar and hardwoods. It is not suited to pine trees because it is too alkaline. Other species that commonly grow in areas of this map unit include sugarberry, green ash, and pecan. On the basis of a 50-year site curve, the mean site index for eastern redcedar is 40. The average annual growth of well stocked, even-aged, unmanaged stands of eastern redcedar at 40 years of age is 140 board feet per acre per year. The understory vegetation consists mainly of panicums, Johnsongrass, broomsedge bluestem, blackberry, Macartney rose, winged elm, green ash, sugarberry, osage orange, redcedar, redbud, and hawthorns.

This map unit has moderate and severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting 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. Support beams should be used to maintain the stability of the cutbanks. 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 do 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 to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIe. The woodland ordination symbol is 4C.

MuB—Maytag-Hannon complex, 1 to 3 percent slopes

This map unit consists of the very deep, moderately well drained Maytag and Hannon soils. It is on gently sloping summits of broad ridges in the Blackland Prairie. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. The Maytag soil makes up about 50 percent of the map unit, and the Hannon soil makes up about 35 percent. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 200 to 500 acres in size.

The Maytag soil is on the flatter, less convex positions and occurs in close proximity to the Hannon soil. Typically, the surface layer of the Maytag soil is dark yellowish brown clay loam about 4 inches thick. The subsoil extends to a depth of 60 inches. It is light olive brown silty clay in the upper part, pale olive silty clay that has brownish and grayish mottles in the next part, and mottled olive and brownish silty clay in the lower part. The profile has soft masses and concretions of calcium carbonate throughout.

Important properties of the Maytag soil—

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

Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

The Hannon soil is in the more convex positions and occurs in close proximity to the Maytag soil. Typically, the surface layer of the Hannon soil is dark brown clay loam about 7 inches thick. The subsoil extends to a depth of 76 inches. It is yellowish red clay in the upper part, light olive brown clay that has reddish and grayish mottles in the next part, and mottled olive, brownish, and grayish clay and clay loam in the lower part. The substratum to a depth of 80 inches is thinly stratified light olive gray sandy clay and olive sandy loam and sandy clay loam. Soft masses and concretions of calcium carbonate are in the lower part of the subsoil and in the substratum.

Important properties of the Hannon soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Faunsdale, Oktibbeha, and Vaiden soils. The somewhat poorly drained Faunsdale soils are in slightly concave positions near the heads of drainageways. Oktibbeha soils are in positions similar to those of the Hannon soils, are acid in the upper part of the subsoil, and do not have masses of calcium carbonate within a depth of 30 inches. The somewhat poorly drained Vaiden soils are in slightly lower positions than those of the Maytag and Hannon soils and are acid throughout the solum. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are poor tilth and a moderate hazard of erosion. These soils can be worked only within a narrow range of moisture content. They become cloddy if tilled when they are too wet or too dry. Conservation tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Returning all crop residue to the soils improves tilth, reduces the extent of crusting, and increases the available water capacity. Restricting field work to dry periods minimizes the ruts and compaction caused by the high content of clay in the soils.

This map unit is well suited to pasture and hay. It has few limitations affecting these uses. Tall fescue, dallisgrass, Johnsongrass, and bahiagrass are the most commonly grown grasses. Restricting field work to dry periods minimizes the ruts and compaction caused by the high content of clay in the soils. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods minimize compaction, help to maintain productivity, and help to keep the pasture in good condition.

Areas of the Maytag soil are suited to eastern redcedar and hardwoods. The Maytag soil is not suited to pine trees because it is too alkaline. 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 Hannon soil are suited to loblolly pine. Because of the intermingling with the Maytag soil, however, onsite delineation of the soil boundaries is recommended before pine trees are planted. 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 greenbrier, panicums, Johnsongrass, broomsedge bluestem, Macartney rose, blackberry, poison ivy, sumac, osage orange, winged elm, redcedar, redbud, and sugarberry.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The clayey textures of the surface layer and the subsoil restrict the use of equipment, especially during rainy periods. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soils and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soils are dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial

plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. These soils have severe limitations affecting 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. Support beams should be used to maintain the stability of the cutbanks. 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 do 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 to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIe. The woodland ordination symbol is 4C in areas of the Maytag soil and 7C in areas of the Hannon soil.

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

This very deep, poorly drained soil is in flat to slightly concave positions on low terraces adjacent to major streams throughout the county. Flooding is rare but can occur under unusual conditions. Slopes are smooth and slightly concave. Most areas are oblong in shape, but some are long and narrow. Areas of this soil range from 5 to about 150 acres in size.

Typically, the surface layer is dark gray loam about 6 inches thick. The subsoil extends to a depth of 65 inches. In the upper part, it is grayish brown sandy clay loam that has brownish and yellowish mottles. In the next part, it is gray clay loam that has brownish and yellowish mottles. In the lower part, it is gray loam that has brownish and yellowish mottles.

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
Depth of the 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: Rare

Included in mapping are a few small areas of Bethera, Cahaba, Dogue, Eunola, and Ocilla soils. Bethera soils are in shallow depressions and are clayey in the upper part of the subsoil. The well drained Cahaba soils and the moderately well drained Dogue and Eunola soils are in slightly higher, more convex positions than those of the Myatt soils. Ocilla soils are on slightly convex knolls and have thick, sandy surface and subsurface layers. Also included are small areas of soils in depressions that are ponded for long periods during the growing season. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit 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.

This map unit is suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include water oak, willow oak, sweetgum, and green ash. On the basis of a 50-year site curve, the mean site index for loblolly pine is 90. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.2 cords per acre per year. The understory vegetation consists mainly of carpetgrass, common bermudagrass, panicums, sedges, red maple, wax myrtle, green ash, water oak, and blackgum.

This map unit has severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less 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 hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are wetness and the flooding. Pilings or mounds can elevate buildings above the expected level of flooding. Septic tank absorption fields do not function properly during rainy periods because of the wetness. Constructing the absorption field on a raised bed helps to overcome the high water table.

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

The capability subclass is IVw. The woodland ordination symbol is 9W.

OcA—Ocilla loamy fine sand, 0 to 2 percent slopes, rarely flooded

This very deep, somewhat poorly drained soil is on low terraces that are parallel to large streams throughout the county. Flooding is rare but can occur under unusual weather conditions. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 10 to 50 acres in size.

Typically, the surface layer is dark grayish brown loamy fine sand about 6 inches thick. The subsurface layer extends to a depth of 29 inches. It is light yellowish brown loamy fine sand that has brownish and grayish mottles. The subsoil extends to a depth of 80 inches. In the upper part, it is light yellowish brown sandy clay loam that has brownish, reddish, and grayish mottles. In the lower part, it is light brownish gray sandy clay loam and sandy clay having brownish and reddish mottles.

Important properties of the Ocilla soil—

Permeability: Rapid in the surface layer and subsurface layer and moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth 1 to $2^1/_2$ feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Goldsboro, Lynchburg, Myatt, and Pelham soils. The moderately well drained Goldsboro soils are on small knolls at the slightly higher elevations and do not have thick, sandy surface and subsurface layers. Lynchburg soils are in slightly lower positions than the Ocilla soils and do not have thick, sandy surface and subsurface layers. The poorly drained Myatt and Pelham soils are in slightly lower positions than those of the Ocilla soils. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are the low fertility, wetness, and the low available water capacity. Shallow ditches can help to remove excess surface water. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water capacity, minimize 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.

This map unit is suited to pasture and hay. The main limitations are the low fertility, wetness, and the

low available water capacity. Shallow ditches can help to remove excess surface water. Drought-tolerant grasses, such as bahiagrass and bermudagrass, are well adapted to the local conditions. Proper stocking rates, pasture rotation, and restricted grazing during very wet and very dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, sweetgum, willow oak, 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, greenbrier, wax myrtle, water oak, willow oak, and sweetgum.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture of the surface layer restricts the use of wheeled equipment, especially when the soil is very dry. Wetness limits the use of equipment during winter and spring. Low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. The main limitations are the flooding and wetness. Pilings or mounds can elevate buildings above the expected level of flooding. A seasonal high water table is present during winter and spring. A drainage system should be provided if buildings are constructed. Septic tank absorption fields do 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 fair potential to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and fair potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is IIIw. The woodland ordination symbol is 9W.

OkC2—Oktibbeha clay loam, 1 to 5 percent slopes, eroded

This very deep, moderately well drained soil is on summits and side slopes of broad ridges in the Blackland Prairie. In most areas, the surface layer of this soil is a mixture of the original surface layer and material from the subsoil. The mixing has been caused by tillage. In some places, all of the original surface layer has been removed. Some areas have a few rills and gullies. Slopes are generally long and smooth. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

Typically, the surface layer is dark brown clay loam about 4 inches thick. The subsoil extends to a depth of 65 inches. In the upper part, it is red clay that has brownish and grayish mottles. In the next part, it is brownish yellow clay that has brownish and grayish mottles. In the lower part, it is light olive brown clay and pale yellow silty clay having brownish and grayish mottles. The lower part of the subsoil has soft masses and concretions of calcium carbonate.

Important properties of the Oktibbeha soil—

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

Included in mapping are a few small areas of Hannon, Maytag, and Vaiden soils. Hannon soils are in positions similar to those of the Oktibbeha soil and have accumulations of calcium carbonate within a depth of 30 inches. Maytag soils are in higher or lower positions than the Oktibbeha soils and are alkaline throughout. The somewhat poorly drained Vaiden soils

are in slightly lower, less convex positions than those of the Oktibbeha soils. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay. Tall fescue, dallisgrass, bahiagrass, and Johnsongrass are the most commonly grown grasses. 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 map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, eastern redcedar, sweetgum, southern red oak, 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, hawthorns, and post oak.

This map unit has moderate and severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. Planting rates can be increased to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly 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 do 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 to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIIe. The woodland ordination symbol is 9C.

OkE2—Oktibbeha clay loam, 5 to 15 percent slopes, eroded

This very deep, moderately well drained soil is on side slopes and narrow ridges in the Blackland Prairie. In most areas, the surface layer of the soil is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has been removed. Most areas have a few rills and shallow gullies. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 5 to 50 acres in size.

Typically, the surface layer is dark yellowish brown clay loam about 3 inches thick. The subsoil extends to

a depth of 72 inches. It is red clay in the upper part, red clay that has brownish and grayish mottles in the next part, and olive and olive gray silty clay that has concretions and soft masses of calcium carbonate in the lower part.

Important properties of the Oktibbeha soil—

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

Included in mapping are a few small areas of Conecuh, Hannon, Maytag, Sumter, and Una soils. Conecuh soils are on high knolls and do not have alkaline materials within a depth of 80 inches. Hannon soils are in positions similar to those of the Oktibbeha soil and have accumulations of calcium carbonate within a depth of 30 inches. Maytag and Sumter soils are in higher or lower positions than those of the Oktibbeha soil. Maytag soils are alkaline below the surface layer. Sumter soils are moderately deep over bedrock and are alkaline throughout. The poorly drained Una soils are on narrow flood plains. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is not suited to cultivated crops, mainly because the slopes are too steep and the hazard of erosion is too severe. The complex slope is also a limitation.

This map unit is suited to pasture and poorly suited to hay. The main limitations are the short, complex slopes if the soil is used for hay and the hazard of erosion. Erosion is a severe hazard if the soils are left bare during the establishment of pasture. The seedbed should be prepared on the contour or across the slope. 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 soil in good condition.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this soil include shortleaf pine, longleaf pine, eastern redcedar, sweetgum, southern red oak, 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, greenbrier, poison ivy, little bluestem, wax myrtle, muscadine grape, American beautyberry, yellow jessamine, blackberry, redbud, redcedar, sweetgum, water oak, and flowering dogwood.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. Also, erosion is a hazard. Exposing the surface by removing ground cover increases the hazard of erosion, including rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The clayey texture of the surface layer and subsoil restricts the use of equipment, especially when the soil is wet. Harvesting and management activities should be planned for seasons when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. The high seedling mortality rate is caused by the clayey texture of the surface. It can be reduced by planting on beds, or it can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the very slow permeability, the very high shrink-swell potential, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain road stability. Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material. If buildings are constructed, reinforcing foundations and footings or backfilling with coarse-textured material prevents the damage caused by shrinking and swelling. Grading or landshaping prior to construction reduces the damage caused by surface

flow of water and reduces the hazard of erosion. Septic tank absorption fields do 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 to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is VIe. The woodland ordination symbol is 9C.

OrA—Orangeburg sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on summits of broad ridges in the central part of the county. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 100 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam about 6 inches thick. The subsoil to a depth of 80 inches is yellowish red sandy clay loam.

Important properties of the Orangeburg soil—

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

Included in mapping are a few small areas of Lucy, Marvyn, Red Bay, Springhill, and Troup soils. Lucy and Troup soils are at the slightly higher elevations on small knolls and have thick, sandy surface and subsurface layers. Marvyn and Red Bay soils are in positions similar to those of the Orangeburg soil. Marvyn soils have a brownish subsoil. Red Bay soils have a dark reddish brown and dark red subsoil. Springhill soils are on the lower parts of slopes. The subsoil of the Springhill soil has a significant decrease in clay content within a depth of 60 inches. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay. It has no significant limitations affecting these uses, although the 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 fertility and increase the production of forage.

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

This map unit has few limitations affecting timber management, although plant competition is a minor management concern. Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control plant competition.

This map unit is well suited to most urban uses. It has no significant limitations for most urban uses.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the

existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability class is I. The woodland ordination symbol is 9A.

PaD—Pacolet sandy loam, 6 to 10 percent slopes

This very deep, well drained soil is on hillslopes in the northern part of the county. Most areas are dissected by deeply incised, intermittent drainageways. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 5 to 100 acres in size.

Typically, the surface layer is dark brown sandy loam about 7 inches thick. The subsurface layer extends to a depth of 11 inches. It is reddish brown sandy clay loam. The subsoil extends to a depth of 38 inches. It is red clay in the upper part and red clay loam in the lower part. The substratum to a depth of 60 inches is mottled red and reddish yellow sandy loam saprolite.

Important properties of the Pacolet soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Cowarts, Kinston, Springhill, and Uchee soils. Cowarts, Springhill, and Uchee soils are on the upper parts of slopes and on narrow ridgetops. Cowarts and Springhill soils are loamy throughout. Uchee soils have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is poorly suited to most cultivated crops. The complex topography and the slope are limitations affecting the use of equipment. Erosion is a severe hazard. Gullies form readily in areas that have a concentrated flow of water on the surface. Using a resource management system that includes contour farming, conservation tillage, crop residue management, stripcropping, and a sod-based rotation reduces the hazard of erosion, helps to control surface runoff, and maximizes infiltration of water. Applying lime and fertilizer on the basis of soil testing increases the availability of plant nutrients and maximizes productivity.

This map unit is suited to pasture and hay. The main limitations are the complex slopes and the severe hazard of erosion. The use of equipment is limited by the sloping, complex topography. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Applying lime and fertilizer on the basis of soil testing increases the availability of plant nutrients and maximizes productivity.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit 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 greenbrier, poison oak, flowering dogwood, huckleberry, muscadine grape, sweetgum, common persimmon, hickory, and water oak.

This map unit has few limitations affecting timber management. Plant competition and erosion, however, are management concerns. Exposing the surface by removing ground cover increases the hazard of erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is suited to most urban uses. It has moderate limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the moderate permeability, and low strength on sites for roads and streets. Also, erosion is a hazard.

Structures can be designed to conform to the natural slope or can be built in the less sloping areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut slopes are stabilized. Roads should also be designed to offset the limited ability of the soil to support a load. Septic tank absorption fields may not function properly because of the moderate permeability. Increasing the size of the absorption fields and placing the distribution lines on the contour improve the performance of the fields. Installing distribution lines during dry periods minimizes smearing and sealing of trench walls. Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep soil on the site.

This map unit has fair potential to support habitat for openland wildlife, good potential to support habitat for woodland wildlife, and very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is IVe. The woodland ordination symbol is 7A.

PaE—Pacolet sandy loam, 10 to 25 percent slopes

This very deep, well drained soil is on hillslopes in the northern part of the county. Areas are dissected by deeply incised, intermittent drainageways. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 10 to 150 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam about 4 inches thick. The subsoil extends to a depth of 36 inches. It is red clay in the upper part and yellowish red clay loam in the lower part. The substratum extends to a depth of 72 inches. It is mottled reddish and brownish. In the upper part, it is saprolite that has a texture of sandy clay loam. In the lower part, it is loam.

Important properties of the Pacolet soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Cowarts, Kinston, Springhill, and Uchee soils. Cowarts, Springhill, and Uchee soils are on the upper parts of slopes or on narrow ridges. Cowarts and Springhill soils are loamy throughout. Uchee soils have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is not suited to most cultivated crops. The complex topography and the moderately steep slopes are severe limitations affecting the use of equipment. Also, erosion is a severe hazard. Gullies form readily in areas that have a concentrated flow of water on the surface. If the soil is cultivated, all tillage should be on the contour or across the slope.

This map unit is poorly suited to pasture and hay. The main limitations are the complex slopes and the severe hazard of erosion. The use of equipment is limited by the sloping, complex topography. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Grasses that require low maintenance should be grown in the more steeply sloping areas. 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 this map unit include longleaf pine, shortleaf pine, sweetgum, southern red oak, 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 greenbrier, poison oak, flowering dogwood, huckleberry,

muscadine grape, sweetgum, common persimmon, hickory, and water oak.

This map unit has moderate limitations affecting timber management. Erosion and the restricted use of equipment are the main limitations. Exposing the surface by removing ground cover increases the hazard of erosion. Reseeding all disturbed areas with adapted grasses and legumes helps to reduce the hazard of erosion and the siltation of streams. Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings. The slope restricts the use of equipment. Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Management activities should be planned for seasons when the soil is dry. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has moderate and severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the moderate permeability, and low strength on sites for roads and streets. Also, erosion is a hazard. Structures can be designed to conform to the natural slope or can be built in the less sloping areas. Only the part of the site that is used for construction should be disturbed. Access roads can be designed so that surface runoff is controlled and cut slopes are stabilized. Roads should also be designed to offset the limited ability of the soil to support a load. Septic tank absorption fields may not function properly because of the moderate permeability and the slope. Effluent from absorption fields may surface in downslope areas and create a health hazard. Increasing the size of the absorption fields and placing the distribution lines on the contour improve the performance of the fields. Installing distribution lines during dry periods minimizes smearing and sealing of trench walls. Vegetating disturbed areas and using erosion-control structures, such as sediment fences and catch basins, help to keep soil on the site.

This map unit has poor potential to support habitat for openland wildlife, fair potential to support habitat for woodland wildlife, and very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is VIe. The woodland ordination symbol is 7R.

PoA—Pelham-Ocilla complex, 0 to 2 percent slopes, rarely flooded

This map unit consists of the very deep, poorly drained Pelham soil and the very deep, somewhat poorly drained Ocilla soil. It is on low terraces that are parallel to large streams throughout the county. Flooding is rare but can occur under unusual weather conditions. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. Although the composition of this unit varies between mapped areas, mapping was controlled well enough to evaluate the soils for the expected uses. The Pelham soil makes up about 45 percent of the map unit, and the Ocilla soil makes up about 35 percent. Slopes are generally long and smooth. Individual areas are generally oblong in shape. They range from 10 to 50 acres in size.

The Pelham soil is generally in the lower, more concave positions. Typically, the surface layer is very dark gray and dark gray loamy fine sand about 8 inches thick. The subsurface layer extends to a depth of 26 inches. It is light brownish gray loamy fine sand that has brownish and yellowish mottles. The subsoil extends to a depth of 68 inches. It is light brownish gray fine sandy loam in the upper part, light brownish gray sandy clay loam that has brownish and yellowish mottles in the next part, and gray sandy clay loam that has brownish and yellowish mottles in the lower part. The substratum to a depth of 80 inches is gray sandy clay.

Important properties of the Pelham soil—

Permeability: Rapid in the surface layer and subsurface layer and slow in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches

Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at the surface to a depth of 1 foot from January through March
Shrink-swell potential: Low
Flooding: Rare

The Ocilla soil is generally in the slightly higher, more convex positions. Typically, the surface layer is very dark grayish brown loamy fine sand about 10 inches thick. The subsurface layer extends to a depth of 24 inches. It is yellowish brown loamy fine sand that has brownish and grayish mottles. The subsoil extends to a depth of 70 inches. In the upper part, it is light yellowish brown and brownish yellow sandy clay loam that has brownish and grayish mottles. In the next part, it is yellowish brown sandy clay loam that has brownish and grayish mottles. In the lower part, it is mottled brownish, reddish, and grayish sandy clay loam.

Important properties of the Ocilla soil—

Permeability: Rapid in the surface layer and subsurface layer and moderate in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 1 to $2^1/_2$ feet from January through March
Shrink-swell potential: Low
Flooding: Rare

Included in mapping are a few small areas of Dogue, Goldsboro, Lynchburg, and Myatt soils. The moderately well drained Dogue and Goldsboro soils are on small knolls at the slightly higher elevations and do not have thick, sandy surface and subsurface layers. Lynchburg soils are in slightly higher positions than the Pelham and Ocilla soils and do not have thick, sandy surface and subsurface layers. The poorly drained Myatt soils are in positions similar to those of the Pelham soil and do not have thick, sandy surface and subsurface layers. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is poorly suited to most cultivated crops. The low fertility, wetness, and the low available water capacity are the main limitations. Shallow ditches can help to remove excess surface water. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water capacity, minimize 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.

This map unit is suited to pasture and hay. The low fertility, wetness, and the low available water capacity are the main limitations. Shallow ditches can help to remove excess surface water. Drought-tolerant grasses, such as bahiagrass and bermudagrass, are well adapted to the local conditions. Proper stocking rates, pasture rotation, and restricted grazing during very wet and very dry 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 unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, sweetgum, willow oak, 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, greenbrier, poison ivy, wax myrtle, water oak, willow oak, blackgum, and sweetgum.

These soils have moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture of the surface and subsurface layers restricts the use of wheeled equipment, especially when the soils are very dry. Low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Wetness limits the use of equipment during winter and spring. Harvesting and management activities should be planned for periods when the soils are dry. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

These soils are poorly suited to most urban uses. The main limitations are the flooding and wetness. Pilings or mounds can elevate buildings above the expected level of flooding. A seasonal high water table is present during winter and spring. A drainage system should be provided if buildings are constructed. Septic tank absorption fields do not

function properly during rainy periods because of the wetness. Increasing the size of the absorption field and constructing the absorption field on a raised bed helps to compensate for this limitation.

This map unit has fair potential to support habitat for openland wildlife and has good potential to support habitat for woodland and wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is IVw in areas of the Pelham soil and IIIw in areas of the Ocilla soil. The woodland ordination symbol is 9W.

Pt—Pits, sand and gravel

This map unit consists of open excavations from which the original soil and underlying material have been removed for use at another location. Pits are scattered throughout the county, primarily on low terraces that parallel large streams and on sandy uplands. Individual areas are generally rectangular or circular in shape. They range from 3 to 500 acres in size.

In upland areas, this map unit has provided a source of material for constructing highways and foundations, for foundry sand, and for use as fill material. Pits in the uplands are mainly in areas of Alaga, Cowarts, Luverne, Springhill, and Troup soils. The soils have been removed to a depth of 5 to 25 feet. On stream terraces and flood plains, this map unit has provided a source of sand and gravel for construction and clay for bricks. Pits on stream terraces and flood plains are mainly in areas of Altavista, Cahaba, Eunola, Riverview, and Toccoa soils. The soils have been removed to a depth of 5 to 50 feet.

Included in mapping are areas of abandoned pits. These areas consist of pits and of 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. Also included are pits that hold water for extended periods after rains.

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

The capability subclass is VIIIs. This map unit has not been assigned a woodland ordination symbol.

RbA—Red Bay sandy loam, 0 to 2 percent slopes

This very deep, well drained soil is on summits of broad ridges and high stream terraces in the western part of the county. Slopes are long and smooth. Individual areas are generally irregular in shape. They range from 10 to more than 80 acres in size.

Typically, the surface layer is dark brown sandy loam about 9 inches thick. The subsoil extends to a depth of 80 inches. It is dusky red and dark red sandy clay loam in the upper part and dark red gravelly sandy clay loam in the lower part.

Important properties of the Red Bay soil—

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

Included in mapping are a few small areas of Orangeburg and Springhill soils. Orangeburg soils are in positions similar to those of the Red Bay soil and are not dark red throughout the subsoil. Springhill soils are on the lower parts of slopes and are not dark red throughout the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. It has few limitations affecting this use, although the low fertility is a management concern. The surface layer is friable and is easy to keep in good tilth. It can be tilled over a wide range of moisture content without becoming cloddy. Using conservation practices, such as cover crops, minimum tillage, and returning all crop

residue to the soil or regularly adding other organic matter, improves fertility and helps to maintain tilth and the content of organic matter. Most crops respond well to systematic applications of lime and fertilizer.

This map unit is well suited to pasture and hay. It has no significant limitations affecting these uses, although the 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 fertility and increase the production of forage.

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

This map unit has few limitations affecting timber management. Plant competition, however, is a minor management concern. Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control plant competition.

This map unit is well suited to most urban uses. It has no significant limitations affecting most uses.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability class is I. The woodland ordination symbol is 9A.

ReA—Riverview silt loam, 0 to 1 percent slopes, occasionally flooded

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

Typically, the surface layer is brown silt loam about 11 inches thick. The subsoil extends to a depth of 60 inches. It is dark yellowish brown loam in the upper part, brown silty clay loam in the next part, and dark yellowish brown silty clay loam and fine sandy loam in the lower part. The substratum to a depth of 72 inches is yellowish brown loamy fine sand.

Important properties of the Riverview soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3½ to 5 feet from January through April
Shrink-swell potential: Low
Flooding: Occasional, for brief periods from December through April

Included in mapping are a few small areas of Altavista, Roanoke, and Toccoa soils. The moderately well drained Altavista soils are on small knolls at slightly higher elevations than the Riverview soil and have strongly developed subsoil layers that have evidence of clay eluviation. The poorly drained Roanoke soils are in slightly lower positions than those of the Riverview soils. Toccoa soils are in slightly higher positions than those of the Riverview soils and have a lower content of clay in the subsoil and substratum. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit 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 the flooding. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water capacity, minimize crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

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

This map unit has few limitations affecting timber management, although competition from understory plants is a 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 map unit is poorly suited to most urban uses. The flooding is the main limitation. Buildings can be constructed on pilings or mounds to elevate them above the expected level of flooding.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, and 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.

The capability subclass is IIw. The woodland ordination symbol is 11A.

RoB—Riverview-Bruno complex, 0 to 3 percent slopes, occasionally flooded

This map unit consists of the very deep, well drained Riverview soil and the very deep, excessively drained Bruno soil. It is on gently undulating natural levees of flood plains along major streams in the northern and western parts of the county. The map unit is subject to occasional flooding, usually in spring. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. The Riverview soil makes up about 45 percent of the map unit, and the Bruno soil makes up about 35 percent. Slopes are short and choppy. Individual areas are generally oblong. They range from 250 to 500 acres in size.

The Riverview soil is generally on the lower parts of natural levees. Typically, the surface layer is dark brown and brown loam about 8 inches thick. The subsoil extends to a depth of 34 inches. It is dark yellowish brown sandy clay loam. The substratum extends to a depth of 60 inches. It is yellowish brown sandy loam in the upper part and brownish yellow loamy fine 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
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 3½ to 5 feet from January through April
Shrink-swell potential: Low
Flooding: Occasional, for brief periods from December through April

The Bruno soil is generally on the higher parts of natural levees. Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsurface layer extends to a depth of 10 inches. It is brown loam. The substratum extends to a depth of 60 inches. It is dark yellowish brown and light yellowish brown loamy fine sand in the upper part and pale brown sand in the lower part.

Important properties of the Bruno soil—

Permeability: Rapid
Available water capacity: Low
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 4 to 6 feet from January through April
Shrink-swell potential: Low
Flooding: Occasional, for brief periods from December through April

Included in mapping are a few small areas of Cahaba, Eunola, and Kinston soils and Fluvaquents. Cahaba and Eunola soils are on small knolls at slightly higher elevations than the Riverview and Bruno soils and have strongly developed subsoil layers that have evidence of clay eluviation. The very poorly drained Fluvaquents are in depressions and are subject to ponding. The poorly drained Kinston soils are in concave drainageways. Included soils

make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to cultivated crops. The main limitations are the occasional flooding and the short, choppy slopes. The planting of early-season crops may be delayed in some years because of the flooding. Land grading and smoothing help to remove excess surface water. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water, minimize crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

This map unit is suited to pasture and hay. The 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 map unit is well suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include yellow-poplar, pecan, sweetgum, water oak, American sycamore, and green ash. On the basis of a 50-year site curve, the mean site index for loblolly pine is 100 in areas of the Riverview soil and 95 in areas of the Bruno soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.7 cords per acre per year in areas of the Riverview soil and 2.5 cords per acre per year in areas of the Bruno soil. The understory vegetation consists mainly of greenbrier, poison ivy, Alabama supplejack, muscadine grape, red maple, sweetgum, and water oak.

This map unit has few limitations affecting timber management, although competition from understory plants is a management concern. Harvesting timber during the summer reduces the risk of damage from flooding. Restricting logging operations during wet periods minimizes rutting and the root damage caused by compaction. Carefully managed reforestation helps to control competition from undesirable understory plants. Site preparation practices, such as chopping, burning, and applying herbicides, help to control the initial plant competition and facilitate mechanical planting.

This unit is poorly suited to most urban uses. The flooding is the main limitation. Buildings can be constructed on pilings or mounds to elevate them above the expected level of flooding.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, and 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.

The capability subclass is IIw in areas of the Riverview soil and IIIs in areas of the Bruno soil. The woodland ordination symbol is 11A in areas of the Riverview soil and 10S in areas of the Bruno soil.

Rw—Riverwash

This map unit consists of unconsolidated deposits of sand and gravel within the bed of Uphapee Creek and other large streams in the northwestern part of the county. It is subject to frequent flooding by fast-flowing water several times each year. The flooding occurs for very brief periods and may occur at any time throughout the year. Slopes are generally short and range from 2 to 10 percent. Individual areas are generally crescent-shaped, but some areas are long and narrow. Areas of Riverwash range from less than 1 acre to about 5 acres in size.

Areas of Riverwash are relatively unstable because of the frequent scouring and deposition by floodwater. The size and shape of individual areas may change with each flood, and layers of material may be deposited or washed away. Soil horizons have not formed in this material because of the instability. The sediments consist mostly of thick and thin strata of sandy, gravelly, and loamy materials.

Included in mapping are a few small areas of Bruno, Riverview, and Toccoa soils. These soils are on the upper edge of mapped areas and have stable, more strongly expressed soil horizons than those of the Riverwash. Included soils make up less than 5 percent of the map unit. Individual areas are generally less than 1 acre in size.

Most areas of this map unit are idle and support little or no vegetation. The more stable, higher lying areas support a few small willow, birch, and alder and sparse stands of grass. This map unit is unsuited to most uses, except as a potential source of sand or gravel. Limitations for agricultural or urban uses include the frequent flooding; instability; and the variability in texture, permeability, and depth to the seasonal high water table. Onsite investigation and testing are needed to determine the suitability of this unit for any uses.

The capability subclass is Vw. This map unit has not been assigned a woodland ordination symbol.

RyA—Roanoke silt loam, 0 to 1 percent slopes, occasionally flooded

This very deep, poorly drained soil is in low, flat to slightly concave positions on low terraces that parallel the Tallapoosa River. This soil is subject to occasional flooding, usually in late winter and early spring. Most mapped areas are oblong in shape. They range from 5 to 30 acres in size.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsoil extends to a depth of 52 inches. In the upper part, it is gray silty clay loam that has brownish mottles. In the next part, it is gray silty clay that has brownish mottles. In the lower part, it is gray silty clay loam that has brownish and reddish mottles. The substratum to a depth of 72 inches is stratified gray sand and clay having brownish and reddish mottles.

Important properties of the Roanoke soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at the surface to a depth of 1 foot from January through March
Shrink-swell potential: Moderate
Flooding: Occasional, for brief periods from December through April in some years

Included in this map unit are a few small areas of Altavista and Dogue soils. These soils are moderately well drained and are in slightly higher, more convex positions than those of the Roanoke soil. Also, the Altavista soils have a loamy subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include sweetgum, water oak, willow oak, 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 2.1 cords per acre per year. The understory vegetation consists mainly of red maple, water oak, green ash, sweetgum, panicums, greenbrier, blackberry, Alabama supplejack, and ironwood.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soil is dry. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less 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 hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are wetness, the slow permeability, and the occasional flooding. Buildings in areas of this soil should be constructed on pilings or on well-compacted fill material that elevates the building above the expected level of flooding.

This map unit has fair potential to support habitat for openland wildlife and woodland wildlife and has good potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland

wildlife can be improved by constructing shallow ponds that provide areas of open water for use by waterfowl and furbearing animals.

The capability subclass is IIIw. The woodland ordination symbol is 9W.

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

This very deep, moderately well drained soil is on narrow ridges, side slopes, and toeslopes in the Blackland Prairie. Slopes are generally long and smooth but are short and complex in some areas. Individual areas are irregular in shape. They range from 10 to 200 acres in size.

Typically, the surface layer is dark yellowish brown fine sandy loam about 6 inches thick. The subsurface layer extends to a depth of 14 inches. It is brown fine sandy loam. The subsoil extends to a depth of 65 inches. It is strong brown and yellowish red sandy clay in the upper part and mottled grayish, brownish, and reddish sandy clay and clay in the lower part.

Important properties of the Searcy soil—

Permeability: Slow
Available water capacity: High
Organic matter content: Low
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 2 to $3^1/_2$ feet from January through March
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Hannon and Oktibbeha soils. Also included are Searcy soils that have slopes of more than 5 percent. Hannon and Oktibbeha soils are on the upper parts of slopes and commonly have alkaline materials in the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. Erosion is the main hazard. Terraces, contour farming, minimum tillage, and cover crops reduce the runoff rate and help to control erosion. Installing drop-inlet structures in grassed waterways helps to prevent gullying. Using a sod-based rotation system and incorporating crop residue into the soil increase the content of organic matter and improve tilth. Most crops respond well to systematic applications of lime and fertilizer.

This map unit is well suited to pasture and hay. Erosion is a hazard if the soil is left bare during the establishment of pasture. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. 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 well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 105. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.9 cords per acre per year. The understory vegetation consists mainly of little bluestem, panicums, greenbrier, poison ivy, huckleberry, muscadine grape, wax myrtle, redbud, and flowering dogwood.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and plant competition. The low strength of the clayey subsoil restricts the use of equipment, especially when the soil is wet. Using standard wheeled and tracked equipment when the soil is wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has moderate limitations affecting building sites and severe limitations affecting local roads and streets and most kinds of sanitary facilities. The main limitations are the moderate shrink-swell potential, the slow permeability, wetness, and low strength on 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 low shrink-swell potential. Roads and streets should be designed to offset the limited ability of the 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 map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting or encouraging the growth of oak trees and suitable understory plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IIe. The woodland ordination symbol is 12C.

SbB—Springhill sandy loam, 2 to 5 percent slopes

This very deep, well drained soil is on summits of narrow, gently undulating ridges and on side slopes of the uplands. Slopes are generally short and complex but may be long and smooth in some areas. Individual areas are irregular in shape. They range from 5 to 500 acres in size.

Typically, the surface layer is brown sandy loam about 6 inches thick. In some areas, however, the surface layer is loamy sand. The subsoil extends to a depth of 77 inches. It is red sandy clay loam in the upper part and red sandy loam in the lower part. The substratum to a depth of 80 inches is red sandy loam.

Important properties of the Springhill soil—

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

Included in mapping are a few small areas of Cowarts, Lucy, Luverne, Orangeburg, Troup, and Uchee soils. Also included are soils that have slopes of less than 2 percent or more than 5 percent. Cowarts soils are in landscape positions similar to those of the Springhill soil and have a brownish subsoil. Lucy, Orangeburg, Troup, and Uchee soils are on the slightly higher parts of ridgetops. Lucy, Troup, and Uchee soils have thick, sandy surface and subsurface layers. The subsoil of the Orangeburg soil does not have a significant decrease in clay content within a depth of 60 inches. Luverne soils are on the lower parts of slopes and are clayey in the upper part of the subsoil. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are the low fertility and a 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. Installing drop-inlet structures in grassed waterways helps to prevent gullying. Returning all crop residue to the soil or regularly adding other organic matter improves fertility and helps to maintain tilth and the content of organic matter. Most crops respond well to applications of lime and fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. The main limitations are the low fertility and a moderate hazard of erosion. Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the germination rate. Proper stocking rates, pasture rotation, and restricted grazing during prolonged wet or dry periods help to keep the pasture in good condition. Applications of lime and fertilizer improve soil fertility and promote the growth of forage plants.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, sweetgum, southern red oak, 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, greenbrier, panicums, brackenfern, southern red oak, blackjack oak, water oak, and flowering dogwood.

This map unit has few limitations affecting timber management, although 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 map unit is well suited to most urban uses. It has no significant limitations affecting these uses.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIe. The woodland ordination symbol is 9A.

SrA—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 250 acres in size.

Typically, the surface layer is very dark grayish brown clay about 6 inches thick. The subsurface layer extends to a depth of 15 inches. It is dark grayish brown silty clay. The subsoil to a depth of 65 inches is dark gray silty clay that has olive mottles.

Important properties of the Sucarnoochee soil—

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

Included in mapping are a few small areas of Faunsdale, Riverview, and Una soils. Faunsdale soils are in slightly higher positions than those of the Sucarnoochee soils and are not subject to flooding. Riverview soils are on high parts of natural levees adjacent to stream channels and are loamy throughout. The poorly drained Una soils are in shallow depressions. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is poorly suited to cultivated crops. The flooding and wetness are the main limitations. Tillage and planting may be delayed in spring, and crops may be damaged by flooding in late spring and early summer. Although the flooding could be controlled by a system of levees and pumps, installing such a system is commonly impractical. Shallow ditches can help to remove excess water from the surface.

This map unit is suited to pasture and poorly suited to hay. The flooding and wetness are the main limitations. Tall fescue, dallisgrass, and Johnsongrass are the most commonly grown grasses. Deferment of grazing during wet periods helps to keep the soil and sod in good condition. Shallow ditches can help to remove excess water from the surface.

This map unit is well suited to cherrybark oak, sweetgum, water oak, and other hardwoods. It is generally not suited to pine trees because it is alkaline within a depth of 20 inches. Other species that commonly grow in areas of this map unit include green ash, American sycamore, water oak, eastern cottonwood, and yellow-poplar. On the basis of a 50-year site curve, the mean 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 honeylocust, poison ivy, winged elm, sweetgum, sugarberry, green ash, blackberry, osage orange, and panicums.

This map unit has severe limitations affecting timber management. 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 ruts and compaction. Using low-pressure ground equipment results in less 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 it can be compensated for by

increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. The flooding, wetness, the very slow permeability, the high shrink-swell potential, and low strength on sites for local roads and streets are severe limitations. Buildings in areas of this soil should be constructed on pilings or on well-compacted fill material that elevates the building above the expected level of flooding.

This map unit has good potential to support habitat for woodland wildlife and has fair potential to support habitat for openland wildlife and wetland wildlife. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas. Habitat for wetland wildlife can be improved by constructing shallow ponds that provide areas of open water for waterfowl and furbearers.

The capability subclass is IVw. The woodland ordination symbol is 6W.

StE—Sumter-Hannon complex, 12 to 25 percent slopes

This map unit consists of the moderately deep, well drained Sumter soil and the very deep, moderately well drained Hannon soil. It is on dissected hillslopes in the Blackland Prairie. The soils occur as areas so intricately intermingled that they could not be mapped separately at the scale selected. The Sumter soil makes up about 50 percent of the map unit, and the Hannon soil makes up about 35 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 20 to 200 acres in size.

The Sumter soil is on summits of narrow ridges and on the upper and middle parts of side slopes. Typically, the surface layer is very dark grayish brown silt loam about 4 inches thick. The subsoil extends to a depth of 35 inches. It is light olive brown silty clay loam in the upper part, light yellowish brown silty clay loam in the next part, and olive yellow silty clay in the lower part. The substratum to a depth of 72 inches is thinly bedded strata of fossil oyster shell, chalk, and marl. The profile has soft masses of calcium carbonate throughout.

Important properties of the Sumter soil—

Permeability: Slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: High
Depth to bedrock: 20 to 40 inches
Depth of the root zone: 20 to 40 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

The Hannon soil is generally on shoulder slopes and on the lower parts of side slopes. Typically, the surface layer is dark brown clay loam about 3 inches thick. The subsoil extends to a depth of 72 inches. It is yellowish red silty clay in the upper part, light olive brown and olive silty clay that has common masses of calcium carbonate in the next part, and olive gray silty clay that has many masses of calcium carbonate in the lower part.

Important properties of the Hannon soil—

Permeability: Very slow
Available water capacity: Moderate
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: High
Flooding: None

Included in mapping are a few small areas of Maytag and Una soils, a few areas of alkaline soils that are shallow over bedrock, and a few areas of alkaline soils that are deep over bedrock. Also included are small areas of gullied land and areas of soils that have slopes of greater than 25 percent or less than 12 percent. Maytag soils are on the lower parts of slopes, are alkaline throughout, and are very deep to bedrock. The poorly drained Una soils are on narrow flood plains. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for woodland and wildlife habitat.

This map unit is not suited to cultivated crops and is poorly suited to pasture and hay. The complex topography and the strongly sloping and moderately steep slopes are severe limitations affecting the use of equipment. Also, erosion is a severe hazard.

Areas of the Sumter soil are suited to eastern

redcedar. The Sumter soil is not suited to pine trees because it is alkaline below the surface layer. 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 Hannon soil are suited to loblolly pine. Because of the intermingling with the Sumter soil, however, onsite delineation of the soil boundaries is recommended before pine trees are planted. 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 greenbrier, poison ivy, broomsedge bluestem, Johnsongrass, panicums, redbud, winged elm, honeylocust, redcedar, sugarberry, and sweetgum.

This map unit has moderate and severe limitations affecting timber management. The main limitations are 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, including rill and gully erosion. Mulching, seeding, and constructing diversions can help to control erosion on roads, landings, and skid trails. The slope and the clayey texture of the surface layer restrict the use of equipment. Using standard wheeled and tracked equipment results in ruts and compaction. Harvesting and management activities should be planned for seasons when the soils are dry. The high seedling mortality rate is caused by droughtiness and clayey textures. It can be compensated for by increasing the number of trees planted and by planting on raised beds. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed burning.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the slope, the restricted permeability, the high shrink-swell potential, and, in areas of the Sumter soil, the depth to bedrock. Also, erosion is a severe hazard.

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

The capability subclass is VIIe. The woodland ordination symbol is 4R in areas of the Sumter soil and 7R in areas of the Hannon soil.

TcA—Toccoa fine sandy loam, 0 to 1 percent slopes, occasionally flooded

This very deep, well drained soil is on high parts of natural levees on the flood plains along the Tallapoosa River and Uphapee Creek. This soil is subject to occasional flooding, usually in spring. Slopes are long and smooth. Individual areas are generally long and narrow. They range from 10 to more than 200 acres in size.

Typically, the surface layer is brown fine sandy loam about 12 inches thick. The substratum extends to a depth of 80 inches. It is yellowish brown and dark yellowish brown sandy loam and fine sandy loam in the upper part and light yellowish brown loamy fine sand in the lower part.

Important properties of the Toccoa soil—

Permeability: Moderately rapid
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 2½ to 5 feet from January through April
Shrink-swell potential: Low
Flooding: Occasional, for brief periods from December through April

Included in mapping are a few small areas of Bruno and Riverview soils and small areas of loamy soils that have buried soils within a depth of 20 inches. Bruno soils are in slightly higher positions than those of the Toccoa soil and have a lower content of clay in the substratum. Riverview soils are in slightly lower positions than those of the Toccoa soil and have a

Figure 10.—Seedling corn in an area of Toccoa fine sandy loam, 0 to 1 percent slopes, occasionally flooded. Leaving crop residue on the surface minimizes crusting and reduces the hazard of erosion.

higher content of clay in the subsoil and substratum. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops (fig. 10). The main limitation is the occasional flooding. The planting of early-season crops may be delayed in some years because of the flooding. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water, minimize crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

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

This map unit has few limitations affecting timber management, although competition from understory plants is a 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 map unit is poorly suited to most urban uses. The flooding is the main limitation. Pilings or mounds can elevate buildings above the expected level of flooding.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, and promoting the natural 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.

The capability subclass is IIw. The woodland ordination symbol is 11A.

ToB—Toccoa fine sandy loam, gently undulating, occasionally flooded

This very deep, well drained soil is on high parts of natural levees on the flood plains along the Tallapoosa River. This soil is subject to occasional flooding, usually in spring. The landscape consists of gently undulating, low ridges and shallow swales. Slopes range from 0 to 3 percent and are short and choppy. Individual areas are generally long and narrow. They range from 75 to more than 200 acres in size.

Typically, the surface layer is brown fine sandy loam about 9 inches thick. The subsurface layer extends to a depth of 12 inches. It is dark yellowish brown fine sandy loam. The substratum extends to a depth of 72 inches. It is dark yellowish brown loamy fine sand in the upper part, brown loam in the next part, and dark yellowish brown fine sandy loam, loam, and loamy fine sand in the lower part.

Important properties of the Toccoa soil—

Permeability: Moderately rapid
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of $2^1/_2$ to 5 feet from January through April
Shrink-swell potential: Low
Flooding: Occasional, for brief periods from December through April

Included in mapping are a few small areas of Bruno and Riverview soils. Also included are a few areas of moderately well drained, loamy soils in some of the shallow swales. Bruno soils are in slightly higher positions than those of the Toccoa soil and have a lower content of clay in the substratum. Riverview soils are in slightly lower positions than those of the Toccoa soil and have a higher content of clay in the subsoil and substratum. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is well suited to cultivated crops. The main limitations are the occasional flooding and the short, choppy slopes. The planting of early-season crops may be delayed in some years because of the flooding. Land grading and smoothing help to remove excess surface water. Conservation tillage, cover crops in winter, a crop residue management system, and a crop rotation that includes grasses and legumes increase the available water capacity, minimize crusting, and improve soil fertility. Most crops respond well to applications of lime and fertilizer.

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

This map unit has few limitations affecting timber management, although competition from understory plants is a 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 map unit is poorly suited to most urban uses. The flooding is the main limitation. Pilings or mounds can elevate buildings above the expected level of flooding.

This map unit has good potential to support habitat for openland wildlife and woodland wildlife and has poor potential to support habitat for wetland wildlife. Habitat for deer, turkey, and squirrel can be improved by planting appropriate vegetation, maintaining the existing plant cover, and promoting the natural 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.

The capability subclass is IIw. The woodland ordination symbol is 11A.

TpB—Troup-Alaga complex, 0 to 5 percent slopes

These very deep, somewhat excessively drained soils are on summits of ridges and on upper parts of side slopes in the uplands in the southeastern part of the county. The soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The mapped areas are about 50 percent Troup soils and 35 percent Alaga soils. Slopes generally are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 100 acres in size.

Typically, the surface layer of the Troup soil is brown loamy fine sand about 10 inches thick. The subsurface layer extends to a depth of 57 inches. It is light yellowish brown loamy fine sand in the upper part and very pale brown loamy sand in the lower part. The subsoil to a depth of 90 inches is red sandy clay loam.

Important properties of the Troup soil—

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

Typically, the surface layer of the Alaga soil is brown loamy fine sand about 8 inches thick. The substratum extends to a depth of 90 inches. It is light yellowish brown loamy fine sand in the upper part, very pale brown loamy fine sand in the next part, and very pale brown loamy sand in the lower part.

Important properties of the Alaga soil—

Permeability: Rapid
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Cowarts, Lucy, Luverne, Orangeburg, and Springhill soils. Also included are Arents in areas that have been strip mined. Cowarts, Luverne, and Springhill soils are generally on the lower parts of slopes and do not have thick, sandy surface and subsurface layers. Lucy and Orangeburg soils are in slightly higher landscape positions than the Alaga and Troup soils. Lucy soils have sandy surface and subsurface layers that have a combined thickness of 20 to 40 inches. Orangeburg soils do not have thick, sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

Most areas of this map unit are used for hay, pasture, or woodland. A significant acreage has been mined as a source of foundry sand (fig. 11).

This map unit is suited to cultivated crops. The main limitations are the low available water capacity, the very low fertility, and a moderate hazard of erosion. Leaching of plant nutrients is also a limitation. Irrigation can prevent crop damage and increase productivity in most years. Returning crop residue to the soil helps to maintain tilth and increases the available water capacity. Minimum tillage, contour farming, and cover crops reduce the runoff rate and help to control erosion. Most crops respond well to applications of lime and frequent, light applications of fertilizer.

This map unit is well suited to pasture and hay plants, such as coastal bermudagrass and bahiagrass. The main limitations are the very low fertility and the low available water capacity. The leaching of plant nutrients is also a limitation. Frequent, light applications of nitrogen are necessary to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

Figure 11.—A sand pit in an area of Troup-Alaga complex, 0 to 5 percent slopes. The sandy surface layer and subsurface layer are removed and shipped to out-of-state markets for use as foundry sand.

This map unit is suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, shortleaf pine, and southern red 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, poison oak, longleaf uniola, lespedeza, common persimmon, pricklypear cactus, brackenfern, flowering dogwood, turkey oak, bluejack oak, and blackjack oak.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The sandy texture restricts the use of wheeled equipment, especially when the soils are very dry. Harvesting activities should be planned for seasons when the soils are moist. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation. The competing vegetation can be controlled by mechanical methods, herbicides, or prescribed burning.

This map unit is suited to most urban uses. It has slight limitations affecting building sites and local roads and streets and has slight to severe limitations affecting most kinds of sanitary facilities. The main limitations are the sandy textures, seepage, low fertility, and droughtiness. Cutbanks are unstable and are subject to slumping. Support beams should be used to maintain the stability of the cutbanks. If septic tank absorption fields are used, effluent can surface in downslope areas and create a hazard to health. Increasing the length of the absorption lines and constructing the lines on the contour help to compensate for this limitation. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential to support habitat for openland wildlife, poor potential to support habitat for woodland wildlife, and very poor potential to

support habitat for wetland wildlife. The low available water capacity and the very low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIIs. The woodland ordination symbol is 8S.

TsF—Troup-Springhill-Luverne complex, 15 to 35 percent slopes

This map unit consists of the very deep, somewhat excessively drained Troup and well drained Springhill and Luverne soils. It is on dissected hillslopes in the southeastern part of the county. The soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The Troup soil makes up about 35 percent of the unit, the Springhill soil makes up about 30 percent, and the Luverne soil makes up about 25 percent. Slopes are generally short and complex. Individual areas are irregular in shape. They range from 40 to more than 100 acres in size.

The Troup soil is generally on the upper parts of slopes. Typically, the surface layer is dark yellowish brown loamy sand about 4 inches thick. The subsurface layer extends to a depth of 55 inches. It is yellowish brown loamy sand in the upper part, light yellowish brown loamy sand in the next part, and very pale brown sand in the lower part. The subsoil to depth of 75 inches is red sandy clay loam.

Important properties of the Troup soil—

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

The Springhill soil is generally on the upper and middle parts of slopes and on narrow ridges. Typically, the surface layer is dark yellowish brown sandy loam about 4 inches thick. The subsurface layer extends to a depth of 12 inches. It is light yellowish brown loamy sand. The subsoil is sandy clay loam and extends to a depth of 65 inches. It is yellowish red in the upper part and red in the lower part.

Important properties of the Springhill soil—

Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Flooding: None

The Luverne soil is generally on the middle and lower parts of slopes. Typically, the surface layer is brown fine sandy loam about 3 inches thick. The subsurface layer extends to a depth of 7 inches. It is light yellowish brown fine sandy loam. The subsoil extends to a depth of 42 inches. In the upper part, it is yellowish red clay. In the lower part, it is strong brown sandy clay that has brownish mottles. The substratum extends to a depth of 65 inches. In the upper part, it is strong brown sandy clay loam that has reddish and brownish mottles. In the lower part, it is yellowish brown sandy loam that has reddish, grayish, and brownish 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
Depth of the root zone: More than 60 inches
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Flooding: None

Included in mapping are a few small areas of Conecuh, Cowarts, Kinston, and Lucy soils. Conecuh soils are on footslopes and have a high shrink-swell potential. Cowarts soils are in landscape positions similar to those of the Springhill soil and have a brownish subsoil. The poorly drained Kinston soils are on narrow flood plains. Lucy soils are in landscape positions similar to those of the Troup soil and have sandy surface and subsurface layers that have a combined thickness of 20 to 40 inches. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is poorly suited to pasture and hay. The main limitations are the slope, the low and very low fertility, the droughtiness of the Troup soil, and a 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 and longleaf pine. Other species that commonly grow in areas of this map unit include shortleaf pine, sweetgum, and water oak. On the basis of a 50-year site curve, the mean site index for loblolly pine is 85 in areas of the Troup soil and 90 in areas of both the Springhill and Luverne soils. 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 in areas of Troup soil and 2.2 cords per acre per year in areas of both the Springhill and Luverne soils. The understory vegetation consists mainly of greenbrier, poison oak, little bluestem, brackenfern, wax myrtle, muscadine grape, American beautyberry, sweetgum, turkey oak, huckleberry, and flowering dogwood.

This map unit has moderate limitations affecting timber management. The main limitations are erosion, the restricted use of equipment, the seedling mortality rate in areas of the Troup soil, and plant competition in areas of the Luverne soil. Exposing the surface by removing ground cover increases the hazard of erosion, including rill and gully erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The slope and sandy texture of the Troup soil restrict the use of equipment. Using equipment that has wide tires or crawler-type equipment and harvesting trees when the soil is moist improve trafficability. The moderate seedling mortality rate in areas of the Troup soil is caused by droughtiness. It can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control 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, moderate shrink-swell potential, and low strength of the Luverne soil and the sandy texture of the Troup soil.

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

The capability subclass is VIIe. The woodland ordination symbol is 8R in areas of Troup soil and 9R in areas of the Springhill and Luverne soils.

UcB—Uchee loamy sand, 1 to 5 percent slopes

This very deep, well drained soil is on summits and shoulder slopes of ridges in the northern part of the county. Slopes are long and smooth. Individual areas are irregular in shape. They range from 20 to more than 50 acres in size.

Typically, the surface layer is dark brown loamy sand about 8 inches thick. The subsurface layer is loamy sand and extends to a depth of 28 inches. It is brown in the upper part, yellowish brown in the next part, and brownish yellow in the lower part. The subsoil extends to a depth of 46 inches. It is yellowish brown sandy loam in the upper part and yellowish brown sandy clay loam that has brownish and reddish mottles in the lower part. The substratum to a depth of 65 inches is stratified light gray sandy clay, yellowish red sandy clay loam, and yellowish brown sandy loam.

Important properties of the Uchee soil—

Permeability: Rapid in the surface layer and subsurface layer and moderately slow in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches

Seasonal high water table: Perched, at a depth of 3½ to 5 feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Blanton, Cowarts, Marvyn, and Orangeburg soils. Blanton soils are in landscape positions similar to those of the Uchee soil and have sandy surface and subsurface layers that have a combined thickness of more than 40 inches. Cowarts, Marvyn, and Orangeburg soils do not have thick, sandy surface and subsurface layers. Cowarts and Marvyn soils are in the slightly lower landscape positions. Orangeburg soils are on high knolls. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

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

This map unit is suited to loblolly pine and longleaf pine. Other species that commonly grow in areas of this map unit include shortleaf pine, sweetgum, willow oak, 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, poison oak, brackenfern, flowering dogwood, common persimmon, turkey oak, and blackjack oak.

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

This map unit is suited to most urban uses. It has moderate limitations affecting building sites and local roads and streets and has severe limitations affecting most kinds of sanitary facilities. The main limitations are the moderately slow permeability in the subsoil and droughtiness. Septic tank absorption fields may not function properly during rainy periods because of the restricted permeability in the subsoil. Enlarging the size of the absorption field helps to compensate for this limitation. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. The low available water capacity and the very low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIs. The woodland ordination symbol is 8S.

UcD—Uchee loamy sand, 5 to 15 percent slopes

This very deep, well drained soil is on hillslopes in the northern part of the county. Slopes are short and complex. Individual areas are irregular in shape. They range from 10 to more than 100 acres in size.

Typically, the surface layer is brown loamy sand about 4 inches thick. The subsurface layer is also loamy sand and extends to a depth of 31 inches. It is pale brown in the upper part and brownish yellow in the lower part. The subsoil extends to a depth of 51 inches. It is yellowish brown sandy loam in the upper part and brownish yellow sandy clay loam in the lower

part. The substratum to a depth of 65 inches is mottled grayish, brownish, and reddish sandy loam.

Important properties of the Uchee soil—

Permeability: Rapid in the surface layer and subsurface layer and moderately slow in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, at a depth of 3½ to 5 feet from January through March
Shrink-swell potential: Low
Flooding: None

Included in mapping are a few small areas of Blanton, Cowarts, Kinston, Luverne, and Springhill soils. Also included are soils that have slopes of less than 5 percent or more than 15 percent. Blanton soils are in landscape positions similar to those of the Uchee soil and have sandy surface and subsurface layers that have a combined thickness of 40 to 80 inches. Cowarts, Luverne, and Springhill soils are on the middle and lower parts of side slopes and do not have thick, sandy surface and subsurface layers. The poorly drained Kinston soils are on narrow flood plains. Included soils make up about 15 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is poorly suited to cultivated crops. The complex topography and the slope are limitations affecting the use of equipment. Erosion is a severe hazard. The sandy texture and droughtiness are also limitations. If the soil is cultivated, all tillage should be on the contour or across the slope.

This map unit is suited to pasture and poorly suited to hay. Coastal bermudagrass and bahiagrass are well adapted to the local conditions. The main limitations are the slope, droughtiness, the very low fertility, and a severe hazard of erosion. The use of equipment is restricted by the sloping, complex topography and the sandy texture. 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 map unit is suited to loblolly pine and longleaf pine (fig. 12). Other species that commonly grow in areas of this map unit include shortleaf pine, sweetgum, southern red oak, willow oak, 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, pricklypear cactus, brackenfern, sumac, common persimmon, flowering dogwood, turkey oak, and blackjack oak.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and the seedling mortality rate. Exposing the surface by removing ground cover increases the hazard of erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The sandy texture of the surface layer restricts the use of wheeled equipment, especially when the soil is very dry. Harvesting activities should be planned for seasons when the soil is moist. Low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted.

This map unit is poorly suited to most urban uses. It has moderate and severe limitations affecting building sites and local roads and streets and has severe limitations affecting most kinds of sanitary facilities. The main limitations are the slope and the moderately slow permeability. The seasonal high water table, the sandy textures, and droughtiness are also limitations. 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. Septic tank absorption fields may not function properly during rainy periods because of the restricted permeability. Effluent from absorption fields may surface in downslope areas and create a health hazard. Alternative methods of sewage disposal should be used. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. The low available water capacity and the very low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several

Figure 12.—A properly thinned and maintained stand of longleaf pine in an area of Uchee loamy sand, 5 to 15 percent slopes. Regularly scheduled prescribed burning reduces competition from undesirable plants and encourages the growth of native seed-producing plants used by quail, turkey, and songbirds.

small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IVs. The woodland ordination symbol is 8S.

UcE2—Uchee-Cowarts complex, 15 to 25 percent slopes, eroded

This map unit consists of the very deep, well drained Uchee and Cowarts soils on dissected hillslopes in the northern part of the county. Most areas have deep gullies. The soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The mapped areas consist of about 50 percent Uchee soil and 35 percent Cowarts soil. Slopes generally are short and complex. Individual areas are irregular in shape. They range from 50 to more than 150 acres in size.

The Uchee soil is generally on the upper parts of slopes and on narrow ridgetops. Typically, the surface layer is dark brown loamy sand about 7 inches thick. The subsurface layer is also loamy sand and extends to a depth of 22 inches. It is dark yellowish brown in the upper part and light yellowish brown in the lower part. The subsoil extends to a depth of 42 inches. It is strong brown sandy clay loam. The substratum to a depth of 72 inches is mottled brownish, reddish, and grayish sandy loam.

Important properties of the Uchee soil—

Permeability: Rapid in the surface and subsurface layers and moderately slow in the subsoil
Available water capacity: Low
Organic matter content: Low
Natural fertility: Very low
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches

Seasonal high water table: Perched, at a depth of 3 1/2 to 5 feet from January through March
Shrink-swell potential: Low
Flooding: None

The Cowarts soil is generally on the lower and middle parts of side slopes. Typically, the surface layer is brown sandy loam about 7 inches thick. In some areas, however, most commonly on nose slopes, the surface layer is gravelly loamy sand. The subsoil extends to a depth of 35 inches. It is strong brown sandy clay loam in the upper part and yellowish red sandy clay loam that has yellowish and grayish mottles in the lower part. The substratum to a depth of 60 inches is mottled reddish, brownish, and grayish sandy loam.

Important properties of the Cowarts soil—

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

Included in mapping are a few small areas of Blanton, Kinston, Luverne, and Springhill soils. Also included are a few small areas of soils that have slopes of less than 15 percent or more than 25 percent. Blanton soils are in landscape positions similar to those of the Uchee soil and have sandy surface and subsurface layers that have a combined thickness of 40 to 80 inches. The poorly drained Kinston soils are on narrow flood plains. Luverne and Springhill soils are in positions similar to those of the Cowarts soil. Luverne soils have a clayey subsoil. Springhill soils have a reddish subsoil and do not have thick, sandy surface and subsurface layers. Included soils make up about 15 percent of the map unit. 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.

This map unit is not suited to cultivated crops. The complex topography and the moderately steep slopes are limitations affecting the use of equipment. Erosion is a severe hazard. Gullies form readily in areas where water flow is concentrated. Also, the sandy texture and droughtiness are limitations in areas of the Uchee soil.

This map unit is poorly suited to pasture and hay. The main limitations are the slope, droughtiness, the low fertility, and a severe hazard of erosion. The use of equipment is restricted by the sloping, complex topography and the sandy texture of the Uchee soil. Proper stocking rates, pasture rotation, and restricted grazing during very wet or dry 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 this map unit include longleaf pine, shortleaf pine, sweetgum, southern red oak, willow oak, 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, pricklypear cactus, brackenfern, sumac, common persimmon, flowering dogwood, turkey oak, and blackjack oak.

This map unit has moderate limitations affecting timber management. The main limitations are the restricted use of equipment and the seedling mortality rate in areas of the Uchee soil and the hazard of erosion. Exposing the surface by removing ground cover increases the hazard of erosion. Roads, landings, and skid trails can be protected against erosion by constructing diversions, mulching, and seeding. The sandy texture of the surface layer in areas of the Uchee soil restricts the use of wheeled equipment, especially when the soil is very dry. Low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. The moderate seedling mortality rate is caused by droughtiness. It can be compensated for by increasing the number of trees planted.

This map unit is poorly suited to most urban uses. It has moderate and severe limitations affecting building sites and local roads and streets and has severe limitations affecting most kinds of sanitary facilities. The main limitations are the slope and the moderately slow permeability. The seasonal high water table, the sandy textures, and droughtiness are additional limitations in areas of the Uchee soil. Also, erosion is a severe hazard. 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. Septic tank absorption fields may not function properly during rainy periods because of the restricted permeability. Effluent from absorption fields may surface in downslope areas and create a health hazard. Alternative methods of sewage disposal should be used. Applying lime and fertilizer, mulching, and irrigating help to establish lawns and landscape plants.

This map unit has fair potential to support habitat for openland wildlife and woodland wildlife and has very poor potential to support habitat for wetland wildlife. The low available water capacity and the low and very low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey.

The capability subclass is VIe. The woodland ordination symbol is 8R.

UdE—Udorthents, rough

These very deep soils are on uplands and on stream terraces. They formed in mixed loamy, sandy, and clayey material in areas that have been strip mined for sand, gravel, or clay and have not been reclaimed. Most areas consist of a series of long, narrow, parallel ridges or piles of loamy, sandy, or clayey material that have a high content of quartz gravel and long, shallow pits. Little of the original soil material, which consisted primarily of Cahaba, Cowarts, Eunola, and Uchee soils, is recognizable in the soil profile because of mixing during mining activities. Some of the pits are ponded for extended periods after heavy rains.

Most areas of these soils are roughly rectangular in shape and range from 5 to more than 100 acres in size. Slopes are short and choppy and range from 5 to 35 percent. Deep gullies are common throughout most areas. These soils are highly variable within a short distance, and they may be loamy, sandy, clayey, or stratified with various textures. The content of rounded, quartz gravel is highly variable.

Included in mapping are a few small areas of unaltered soils, mostly Cahaba, Dogue, and Eunola soils on stream terraces and Cowarts, Luverne, and Uchee soils on uplands. The included soils are generally on the edges of mapped areas and make up about 10 percent of the map unit.

Most areas of this map unit are idle and have reverted to poor-quality woodland. Loblolly pine, shortleaf pine, longleaf pine, sweetgum, and yellow-poplar are the common trees.

This map unit is generally not suited to most agricultural and urban uses and is poorly suited to woodland. The steep, irregular landscape and the extreme variability of the soils are limitations affecting most uses. Additional limitations include poor tilth, low fertility, a low content of organic matter, droughtiness, and a high content of rock fragments. Onsite investigation and testing are needed to determine the suitability of this unit for any uses.

The capability subclass is VIIe. The woodland ordination symbol is 6D.

UoC—Udorthents, smooth

These very deep soils are on uplands and on stream terraces. They formed in mixed loamy, sandy, and clayey material in areas that have been strip mined for sand, gravel, or clay and then reclaimed. Most areas have been smoothed to the general land contours that existed before the mining, but no efforts were made to replace the original layers of soil and underlying material. Little of the original soil material, which consisted primarily of Cahaba, Cowarts, Eunola, and Uchee soils, is recognizable in the soil profile because of mixing during reclamation.

Most areas of these soils are roughly rectangular in shape and range from 5 to more than 100 acres in size. Slopes are generally long and smooth. They range from 2 to 8 percent. These soils are highly variable within a short distance, and they may be loamy, sandy, clayey, or stratified with various textures. The content of rounded, quartz gravel is also highly variable.

Included in mapping are a few small areas of unaltered soils, mostly Cahaba, Dogue, and Eunola soils on stream terraces and Cowarts, Luverne, and Uchee soils on uplands. The included soils are generally on the edges of mapped areas and make up about 5 percent of the map unit.

Most areas of this map unit are idle. A few areas are used for woodland, and a few areas are used for pasture or hay.

This map unit is generally poorly suited to most agricultural and urban uses. The limitations affecting plant growth include poor tilth, low fertility, a low content of organic matter, and droughtiness. The limitations affecting most urban uses include slow permeability, a high content of rock fragments, and the variability of the soil textures. Onsite investigation and testing are needed to determine the suitability of this unit for any uses.

This map unit is suited to loblolly pine. 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 1.6 cords per acre per year.

This map unit has moderate and severe limitations

affecting timber management. The main limitation is the high seedling mortality rate caused by soil compaction and droughtiness. It can be compensated for by increasing the number of trees planted. Planting trees on raised beds or subsoiling to loosen the compacted soil material increases the seedling survival rate.

The capability subclass is IVs. The woodland ordination symbol is 7D.

UuA—Udorthents-Urban land complex, 0 to 2 percent slopes

This map unit consists of the very deep Udorthents and areas of Urban land on uplands and stream terraces, primarily in the Tuskegee area. The areas of Udorthents and Urban land occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The Udorthents make up about 50 percent of the map unit, and the Urban land makes up about 40 percent. Individual areas are rectangular in shape. They range from 3 to more than 100 acres in size.

Udorthents consist of earthen materials that have been so modified by construction activities that the original soil components are no longer recognizable. The original soils were altered by cutting and filling, shaping and grading, and compacting. In some areas, the Udorthents consist of materials hauled in from other sources. Udorthents are highly variable within a short distance and may be clayey, loamy, or stratified with various textures. Fragments of concrete, wood, metal, and other debris from construction activities commonly are mixed into the Udorthents.

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

Included in mapping are a few small areas of Cowarts, Dogue, Eunola, Springhill, and Uchee soils. These soils are on the edges of mapped areas and have identifiable soil horizons. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

Areas of Udorthents cannot easily be managed for crops, pasture, timber, or wildlife habitat because of the limited size of the areas, the areas of Urban land, and the variability of soil properties. Onsite investigation and testing are needed to determine the suitability of this unit for any uses.

The capability subclass is VIs in areas of the Udorthents and VIIIs in areas of the Urban land. This unit has not been assigned a woodland ordination symbol.

UvA—Urbo-Una-Mooreville complex, 0 to 1 percent slopes, frequently flooded

This map unit consists of the very deep, somewhat poorly drained Urbo, poorly drained Una, and moderately well drained Mooreville soils on flood plains along large streams in the southern part of the county. These soils are subject to flooding for brief periods several times each year. They occur as areas so intricately intermingled that it was not practical to map them separately at the scale selected. The Urbo soil makes up about 40 percent of the map unit, the Una soil makes up about 25 percent, and the Mooreville soil makes up about 20 percent. Individual areas are usually long and narrow. They range from 20 to more than 500 acres in size.

The somewhat poorly drained Urbo soil is in flat to slightly concave positions, generally at low and intermediate elevations on the flood plain. Typically, the surface layer is dark grayish brown silty clay loam about 6 inches thick. The subsoil extends to a depth of 80 inches. In the upper part, it is light olive brown silty clay loam that has brownish and grayish mottles. In the next part, it is grayish brown silty clay that has brownish and reddish mottles. In the lower part, it is gray silty clay and clay having brownish and reddish mottles.

Important properties of the Urbo soil—

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

The poorly drained Una soil is in swales, sloughs, and other depressional areas at the lowest elevations on the flood plain. Typically, the surface layer is dark grayish brown silty clay loam about 4 inches thick. The subsoil extends to a depth of 80 inches. In the upper part, it is grayish brown and gray silty clay that has brownish mottles. In the lower part, it is dark gray and olive gray clay that has brownish and reddish mottles.

Important properties of the Una soil—

Permeability: Very slow
Available water capacity: High

Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Perched, from 2 feet above the surface to a depth of 1/2 foot from December through April
Shrink-swell potential: Moderate
Flooding: Frequent, for brief periods from December through April

The moderately well drained Mooreville soil is in slightly convex positions on low ridges and natural levees. Typically, the surface layer is brown loam about 4 inches thick. The subsoil extends to a depth of 55 inches. It is yellowish brown clay loam in the upper part, yellowish brown sandy clay loam that has brownish and grayish mottles in the next part, and yellowish brown clay loam that has grayish mottles in the lower part. The substratum to a depth of 88 inches is gray sandy clay loam.

Important properties of the Mooreville soil—

Permeability: Moderate
Available water capacity: High
Organic matter content: Medium
Natural fertility: Medium
Depth to bedrock: More than 60 inches
Depth of the root zone: More than 60 inches
Seasonal high water table: Apparent, at a depth of 1 1/2 to 3 feet from January through April
Shrink-swell potential: Moderate
Flooding: Frequent, for brief periods from December through April

Included in mapping are a few small areas of Dogue, Goldsboro, and Lynchburg soils. The moderately well drained Dogue and Goldsboro soils and the somewhat poorly drained Lynchburg soils are on low knolls or remnants of terraces at slightly higher elevations than the Urbo, Mooreville, and Una soils. The included soils are not subject to frequent flooding and make up about 15 percent of the map unit. 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, hay, or cultivated crops.

This map unit is not suited to most cultivated crops. The frequent flooding and the wetness are the main limitations. If cultivated crops are grown, a surface drainage system and protection from flooding are needed.

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

This map unit is suited to loblolly pine and hardwoods. Species other than loblolly pine that commonly grow in areas of this map unit include American sycamore, yellow-poplar, cherrybark oak, water oak, green ash, and sweetgum. On the basis of a 50-year site curve, the mean site index for loblolly pine is 95 in areas of Urbo soil and 105 in areas of the Mooreville soil. The average annual growth of well stocked, even-aged, unmanaged stands of loblolly pine at 25 years of age is 2.5 cords per acre per year in areas of the Urbo soil and 2.9 cords per acre per year in areas of the Mooreville soil. On the basis of a 50-year site curve, the mean site index for water tupelo is 70 in areas of the Una soil. The average annual growth of well stocked, even-aged, unmanaged stands of water tupelo at 30 years of age is 0.5 cord per acre per year. The understory vegetation consists mainly of muscadine grape, Alabama supplejack, greenbrier, poison ivy, longleaf uniola, sweetgum, blackgum, water oak, sweetbay, green ash, and red maple.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the seedling mortality rate, and plant competition. The seasonal high water table and the flooding restrict the use of equipment to periods when the soils are dry. Using standard wheeled and tracked equipment when the soils are wet results in ruts and compaction. Using low-pressure ground equipment results in less damage to the soils and helps to maintain productivity. The high seedling mortality rate is caused by excessive wetness. It can be reduced by planting on raised beds, or it can be compensated for by increasing the number of trees planted. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is not suited to most urban uses. The flooding and wetness are severe limitations affecting most uses. Pilings or mounds can elevate buildings above the expected level of flooding.

The Urbo and Mooreville soils have fair potential to support habitat for openland wildlife and good potential to support habitat for woodland wildlife habitat. The Una soil has poor potential to support habitat for openland wildlife and woodland wildlife. The

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

The capability subclass is Vw. The woodland ordination symbol is 10W in areas of the Urbo soil, 7W in areas of the Una soil, and 12W in areas of the Mooreville soil.

VaA—Vaiden silty clay loam, 0 to 2 percent slopes

This very deep, somewhat poorly drained soil is in flat or slightly convex positions on broad ridges in the Blackland Prairie. Slopes are long and smooth. Individual areas are generally broad and oblong in shape. They range from 25 to 150 acres in size.

Typically, the surface layer is very dark grayish brown silty clay loam and silty clay about 7 inches thick. The subsoil extends to a depth of 70 inches. It is yellowish brown clay that has grayish and reddish mottles in the upper part; mottled brownish, grayish, and reddish clay in the next part; and mottled brownish, grayish, and reddish silty clay in the lower part. The lower part of the subsoil has soft masses and concretions of calcium carbonate.

Important properties of the Vaiden soil—

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

Included in mapping are a few small areas of Faunsdale, Maytag, Oktibbeha, and Sucarnoochee soils. Also included are a few small areas of poorly drained soils in small depressions. Faunsdale and Maytag soils are in slightly higher positions than those of the Vaiden soils and are alkaline throughout. Oktibbeha soils are in the slightly higher, more convex positions and have reddish colors in the upper part of the subsoil. Sucarnoochee soils are on narrow flood plains and are subject to frequent flooding. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

This map unit is suited to most cultivated crops. The main limitations are wetness and poor tilth. The wetness delays planting and tillage operations in most years. Shallow ditches can help to remove excess surface water. This soil can be worked only within a narrow range of moisture content and becomes cloddy if tilled when it is too wet or too dry. Returning all crop residue to the soil improves tilth, minimizes crusting, increases the available water capacity, and increases the rate of water infiltration.

This map unit is suited to pasture and hay. Tall fescue, dallisgrass, Johnsongrass, and bahiagrass are the most commonly grown grasses. Wetness is the main limitation. Shallow ditches can 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 map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include shortleaf pine, sweetgum, post oak, 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, green ash, and hawthorns.

This map unit has moderate and severe limitations affecting timber management. The main limitations are the restricted use of equipment, the high 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 ruts and compaction. Using low-pressure ground equipment results in less damage to the soil and helps to maintain productivity. Harvesting and management activities should be planned for seasons when the soil is dry. The high seedling mortality rate is due to wetness and the clayey textures. Planting seedlings on raised beds and increasing the number of seedlings planted help to compensate for the high seedling mortality rate. Plant competition hinders the growth of trees and can prevent adequate reforestation unless sites receive

intensive preparation and maintenance. Site preparation can control the initial plant competition, and herbicides can be used to control subsequent growth.

This map unit is poorly suited to most urban uses. It has severe limitations affecting building sites, local roads and streets, and most kinds of sanitary facilities. The main limitations are the very high shrink-swell potential, the very slow permeability, wetness, and low strength on sites for roads and streets. If excavations are made, the cutbanks cave easily. Support beams should be used to maintain the stability of the cutbanks. Properly designing foundations and footings and diverting runoff water away from 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 do not function properly because of the very slow permeability and the seasonal high water table. An alternate method of waste disposal is needed to dispose of sewage properly.

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

The capability subclass is IIIw. The woodland ordination symbol is 8C.

WaB—Wagram loamy sand, 1 to 3 percent slopes

This very deep, well drained soil is on summits of broad ridges in the central and southern parts of the county. Slopes are long and smooth. Individual areas are irregular in shape. They range from 10 to more than 80 acres in size.

Typically, the surface layer is brown loamy sand about 6 inches thick. The subsurface layer is loamy fine sand and extends to a depth of 23 inches. It is light yellowish brown in the upper part and very pale brown in the lower part. The subsoil extends to a depth of 80 inches. It is yellowish brown sandy clay loam in the upper part, yellowish brown sandy clay loam that has brownish and reddish mottles in the next part, and strong brown sandy clay loam that has reddish and grayish mottles in the lower part

Important properties of the Wagram soil—

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

Included in mapping are a few small areas of Blanton, Bonifay, Lucy, and Marvyn soils. Also included are a few small areas of soils that are similar to the Wagram soil, except they have significant accumulations of plinthite in the subsoil. Blanton and Bonifay soils are in landscape positions similar to those of the Wagram soil and have sandy surface and subsurface layers that have a combined thickness of 40 to 80 inches. Lucy and Marvyn soils are on small knolls at slightly higher elevations than the Wagram soil. Lucy soils have a reddish subsoil. Marvyn soils do not have thick, sandy surface and subsurface layers. Included soils make up about 10 percent of the map unit. Individual areas are generally less than 5 acres in size.

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

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

This map unit is well suited to pasture and hay. The main limitations are the low available water capacity and the low fertility. Drought-tolerant grasses, such as bahiagrass and coastal bermudagrass, are well

adapted to the local conditions. The leaching of plant nutrients is also a limitation. Split applications of nitrogen fertilizer are needed to maintain the productivity of grasses. Proper stocking rates, pasture rotation, and restricted grazing during prolonged dry periods help to keep the pasture in good condition.

This map unit is well suited to loblolly pine. Other species that commonly grow in areas of this map unit include longleaf pine, sweetgum, southern red oak, 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 oak, brackenfern, flowering dogwood, common persimmon, blackjack oak, panicums, and little bluestem.

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

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

This map unit has good potential to support habitat for openland wildlife, fair potential to support habitat for woodland wildlife, and very poor potential to support habitat for wetland wildlife. The low available water capacity and the low natural fertility are limitations affecting the improvement of wildlife habitat. Habitat can be improved by planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Prescribed burning every three years, rotated among several small tracts of land, can increase the amount of palatable browse for deer and the number of seed-producing plants for quail and turkey. Leaving undisturbed areas of vegetation around cropland and pasture improves habitat for openland wildlife by providing food and rest areas.

The capability subclass is IIs. The woodland ordination symbol is 9S.

Prime Farmland

In this section, prime farmland is defined and the soils in Macon 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 8 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 119,260 acres, or about 30 percent of the total area in Macon County, meets the soil requirements for prime farmland. The prime farmland is scattered throughout the county. A large part of the prime farmland is used for cultivated crops, pasture, and hay. The main cultivated crops are cotton, corn, and soybeans.

Because Macon County is primarily rural and does not have a large population center, few areas of prime farmland have been converted to industrial or urban uses, except in the vicinity of Tuskegee.

The map units in the survey area that are considered prime farmland are listed at the end of this section. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 5. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The map units that meet the requirements for prime farmland are:

AlA	Altavista 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
CmB	Compass loamy sand, 1 to 3 percent slopes
CoB	Conecuh fine sandy loam, 1 to 3 percent slopes
DgA	Dogue fine sandy loam, 0 to 2 percent slopes, rarely flooded
EuA	Eunola fine sandy loam, 0 to 2 percent slopes, rarely flooded
FaA	Faunsdale clay loam, 1 to 3 percent slopes
GoA	Goldsboro loamy fine sand, 0 to 2 percent slopes
GrA	Gritney loamy fine sand, 0 to 2 percent slopes
GrB	Gritney fine sandy loam, 2 to 5 percent slopes
HnB	Hannon clay loam, 1 to 3 percent slopes
HnC2	Hannon clay, 3 to 5 percent slopes, eroded
LuB	Luverne sandy loam, 1 to 5 percent slopes
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes, rarely flooded
MaA	Malbis fine sandy loam, 0 to 2 percent slopes

MnA	Marvyn sandy loam, 0 to 2 percent slopes
MnB	Marvyn loamy sand, 2 to 5 percent slopes
MtA	Maytag silty clay, 0 to 2 percent slopes
MuB	Maytag-Hannon complex, 1 to 3 percent slopes
OkC2	Oktibbeha clay loam, 1 to 5 percent slopes, eroded
OrA	Orangeburg sandy loam, 0 to 2 percent slopes
RbA	Red Bay sandy loam, 0 to 2 percent slopes
ReA	Riverview silt loam, 0 to 1 percent slopes, occasionally flooded
SaB	Searcy fine sandy loam, 2 to 5 percent slopes
SbB	Springhill sandy loam, 2 to 5 percent slopes
TcA	Toccoa fine sandy loam, 0 to 1 percent slopes, occasionally flooded
ToB	Toccoa fine sandy loam, gently undulating, occasionally flooded
VaA	Vaiden silty clay loam, 0 to 2 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 prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension System.

In 1995, about 22,200 acres of cropland, 14,000 acres of hay, and 44,600 acres of pasture were in Macon County (Consolidated Farm Service Agency, 1995). About 5,600 acres of cotton, 1,200 acres of corn, 1,000 acres of wheat, and 600 acres of soybeans were planted in the county in 1995. A small acreage of truck crops was grown in the central and west-central parts of the county. The total acreage used for cultivated crops and pasture has been decreasing slightly for several years. The current trend is toward the conversion of marginal cropland to woodland.

The potential is good for increased production of food and fiber in Macon County. 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 adapted to the soils and climate in Macon County include many crops that are not commonly grown because of economic considerations. Cotton, corn, and soybeans are the main row crops that are grown in the county. Grain sorghum, vegetable crops, 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 can be grown. The specialty crops grown in the county include sweet corn, peas, okra, melons, strawberries, blueberries, sod, nursery stock, and alfalfa. Many of the soils in the survey area, including Bama, Malbis, Orangeburg, and Red Bay soils, are well suited to specialty crops. If

economic conditions are favorable, a large acreage of these crops can be grown. Pecans and blueberries are the only orchard crops that are grown commercially in the county. Additional information regarding specialty crops can be obtained from the local office of the Cooperative Extension System or the Natural Resources Conservation Service.

Erosion is a major concern on about one-third of the cropland and one-half of the pastureland in Macon County (Macon County SWCD, 1980). Where the slope is more than 2 percent, erosion is a hazard. Conecuh, Cowarts, Gritney, Hannon, Luverne, Maytag, Oktibbeha, and Springhill soils are examples of soils that are cultivated and that are subject to erosion.

Erosion can reduce productivity and can result in the pollution of streams. Productivity is reduced as the surface layer 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 Conecuh, Hannon, Luverne, and Oktibbeha soils, and on soils that have a layer in the subsoil that restricts rooting depth, such as Cowarts and Malbis 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 do not reduce the productive capacity of the soils. Including legumes and grasses in the cropping system helps to control erosion 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. 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. Examples are Luverne, Marvyn, Orangeburg, and Springhill soils. Sandy soils, such as Alaga, Blanton, Bonifay, Lucy, Troup, and Wagram soils, are not suitable for terracing because gullies form easily when water is concentrated on the surface. Grassed waterways or underground tile 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 an effective method of erosion control in cultivated areas when used in conjunction with a water-disposal system. Contour farming is best suited to soils that have smooth, uniform slopes. Examples are Conecuh, Faunsdale, Hannon, Marvyn, Maytag, Oktibbeha, and Orangeburg 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 generally is 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.

Macon County has an adequate amount of rainfall for the commonly grown crops. 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 have a slow rate of water infiltration that limits their suitability for irrigation. Examples include Conecuh, Gritney, Hannon, Maytag, and Oktibbeha soils.

Most of the soils that are used for crops in the county have a surface layer of sandy loam or loamy sand that 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 minimize crusting, thus improving the rate of water infiltration.

The use of heavy equipment for tillage results in compaction of subsurface layers in most of the soils on the Coastal Plain. The compacted layers, which are called plow pans or traffic pans, are generally at a depth of 2 to 12 inches. They restrict the rate of water infiltration and limit the growth of plant roots. Soils that readily develop a traffic pan include Bama, Cowarts, Gritney, Malbis, Orangeburg, and Red Bay soils.

Tilth is an important factor affecting plant growth because it influences the rate of water infiltration into

the soil. Soils that have good tilth have sufficient organic matter and a granular, porous surface layer. Tilth is affected by the type of crop planted, past farming practices, and the degree of erosion that has occurred. Practices that maintain or increase the content of organic matter are needed for all of the soils that are used as cropland in the county.

Natural fertility is low in most of the soils in Macon County. Applications of agricultural limestone are needed to neutralize acidity in most of the soils. The alkaline soils on the Blackland Prairie are exceptions. Maytag, Sucarnoochee, and Sumter soils are examples. 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 have a buildup of phosphorus or potassium because of past applications of large quantities of commercial fertilizer. Therefore, applications of lime and fertilizer should be based on the results of soil testing. Leaching is a concern in areas of sandy soils, such as Blanton, Bonifay, Lucy, and Troup soils. Higher levels of nitrogen, applied in split applications, should be used on these soils. The Cooperative Extension System can help in the determination of the kinds and amounts of fertilizer and lime that should be applied.

Wetness is a management concern in areas of Bethera, Kinston, Lynchburg, Myatt, Pelham, Roanoke, Sucarnoochee, Una, Urbo, and Vaiden soils. If crops are grown in areas of these soils, a drainage system is needed to minimize the wetness.

Bahiagrass, improved bermudagrass, and tall fescue are the main perennial grasses grown for pasture and hay in Macon County. Rye, ryegrass, and wheat are grown as annual cool-season grass forage. Millets, sorghums, and hybrid forage sorghums provide most of the annual warm-season grass forage. These annuals are generally grown for temporary grazing and for hay in areas otherwise used as cropland. Most of the soils in the county are suited to arrowleaf clover, ball clover, crimson clover, white clover, and other cool-season forage legumes, especially if agricultural limestone is applied in proper amounts. The well drained soils, such as Bama, Cahaba, Malbis, Orangeburg, Red Bay, Riverview, Springhill, and Toccoa soils, are well suited to alfalfa, which is a warm-season legume.

A combination of management practices is needed on all of the soils that are used as pasture or hayland. These practices include proper grazing management, control of weeds, proper applications of fertilizer, rotational grazing, and the scattering of animal droppings. Overgrazing, insufficient fertilizer, and acid soils can result in weak plants and poor stands that are quickly infested with weeds. Maintaining a dense cover of desired pasture species helps to prevent the establishment of weeds.

Yields per Acre

The average yields per acre that can be expected of the principal crops and pasture plants under a high level of management are shown in tables 6 and 7. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in table 6.

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

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

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

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

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would

change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

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

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

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w* or *s* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, 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 table 6.

Landscaping and Gardening

Kenneth M. Rogers, conservation agronomist, Natural Resources Conservation Service, helped prepare this section.

The soils in residential areas are used primarily as sites for homes, driveways, and streets. Remaining areas of each lot are commonly used for lawns, which enhance the appearance of the home; as gardens for vegetables or flowers and shrubs; as orchards for fruits and nuts; for recreational uses; as habitat for animals and birds; for trees, which provide shade and promote energy conservation; for vegetation and structures designed to abate noise, enhance privacy, and provide protection from wind; and for septic tank absorption fields. Because the outdoor areas are used for several purposes, careful planning and a good understanding of the soils are important.

This section contains general soil-related information for landscaping and gardening. Other information may be obtained from the local office of the Cooperative Extension System or the Natural Resources Conservation Service or from private businesses that provide landscaping and related services. The amount of soil information needed for use in some areas is beyond the scope of this survey and is more detailed than that provided at the map scale used. Onsite investigation is needed in these areas.

Most of the soils in the residential areas in Macon County have been disturbed to some degree during construction of houses, streets, driveways, and utility service. This construction involved cutting and filling, grading, and excavating. As a result, soil properties are more variable and less predictable than in undisturbed areas. Onsite examination is needed for the planning of land uses in disturbed areas.

Some of the poorest soils for plant growth in the county are Cowarts, Conecuh, Luverne, and Marvyn soils that have had the surface layer removed during grading. The exposed dense, firm subsoil restricts root penetration, absorbs little rainfall, and results in excessive runoff. Incorporating organic matter into the soil improves tilth, increases the rate of water infiltration, and provides a more desirable rooting medium. Areas that are subject to intensive foot traffic

should be covered with gravel or a mulch, such as pine bark or wood chips.

Some soils are wet. Examples are Lynchburg, Myatt, and Roanoke soils. The wetness limits the selection of plants to those that are tolerant of a high moisture content in the soil. Several methods can be used to minimize the effects of the wetness. Installing underground tile drains can lower the water table in permeable soils. Bedding the surface layer of slowly permeable soils helps to provide a satisfactory root zone for some plants.

Some soils are on flood plains. Examples are Kinston, Mooreville, Una, and Urbo soils. Most plants used for gardening and landscaping can be grown on these soils, but consideration should be given to the effects of floodwater. Surface drainage is a management concern because urban uses commonly result in increased rates of surface runoff, which increase the frequency and severity of flooding. Advice and assistance regarding drainage problems can be obtained from the Natural Resources Conservation Service, municipal and county engineering departments, and private engineering companies.

Sandy soils are droughty, have low fertility, and have a low content of organic matter. Examples are Alaga, Blanton, Troup, Uchee, and Wagram soils. Droughtiness limits the selection of plants that can be grown unless irrigation is provided. Additions of organic matter increase the available water capacity and help to retain nutrients in the root zone. Supplemental watering and split applications of plant nutrients are recommended. Applying a mulch, such as pine bark, wood chips, or pine straw, or incorporating peat moss or well-decomposed manure into the soil provides a more desirable medium for plant growth.

Natural fertility is low in most of the soils in Macon County. Most of the soils, with the exception of Faunsdale, Maytag, Sucarnoochee, and Sumter soils, are strongly acid or very strongly acid. Additions of ground limestone are needed to neutralize the acidity of most of the soils. The original surface layer contains the most plant nutrients and has the most favorable pH for most plants. In many areas, the fertility of the surface layer has been improved by applications of lime and fertilizer. If the surface layer is removed during construction, the remaining soil is very acid and low in available plant nutrients. Also, some nutrients are unavailable for plant growth in acid soil conditions. Disturbed soils generally need larger amounts of lime and fertilizer, which should be applied according to the results of soil tests and the type of plants grown. Information on sampling for soil testing can be obtained from the Cooperative Extension System, the Natural Resources Conservation Service, and local nurseries.

In the following paragraphs, some of the plants that are used in landscaping and gardening and some management relationships between the plants and the soils are described. Information in this section should be supplemented by consultations with specialists at the Cooperative Extension System, the Natural Resources Conservation Service, or private landscaping and gardening businesses.

The grasses used for landscaping in Macon County are mainly vegetatively propagated species, such as zoysiagrass, hybrid bermudagrass, St. Augustine grass, and centipede grass, and seeded species, such as common bermudagrass and centipede grass. The grasses commonly used for short-term cover include ryegrass, rye, wheat, Sudangrass, and millet.

The vegetatively propagated plants are usually planted as sprigs, plugs, or sod. Additions of topsoil may be needed before planting in some areas. Also, lime and fertilizer should be applied and incorporated into the soil. The plants should be placed in close contact with the soil, and the plantings should be watered to ensure the establishment of the root system. St. Augustine grass, centipede grass, and certain strains of zoysiagrass are moderately shade tolerant. St. Augustine grass and zoysiagrass generally require more maintenance than centipede grass. The strains of hybrid bermudagrass are fast growing, but they are not as tolerant of shade as St. Augustine grass, centipede grass, or zoysiagrass.

Common perennial grasses that are established by seeding include common bermudagrass and centipede grass. Lime and fertilizer should be applied and incorporated into the soil before seeding. Proper planting depth is important when grasses are established from seed.

Short-term vegetative cover is used to protect the soil at construction sites or to provide cover between the planting seasons of the desired grass species. The most commonly used grasses for short-term cover are ryegrass for cool seasons and Sudangrass or millet for warm seasons. These species are annuals and die after the growing season. Periodic applications of lime and fertilizer are needed on all types of grasses. The kinds and amounts of lime and fertilizer to apply should be based on the results of soil tests.

Vines can be used to provide vegetative cover in moderately shaded areas and in steep areas that cannot be mowed. English ivy and periwinkle can be used for ground cover or on walls and fences. All of these plants are propagated vegetatively, usually from potted plants or sprigs.

Mulches can be used for ground cover in areas

where traffic is too heavy for grass cover, in areas where shrubs and flowers are desired with additional ground cover, and in densely shaded areas. Mulches provide effective ground cover. They also provide immediate cover to help control erosion in areas where live vegetation is not desired. Effective mulches include pine straw, small-grain straw, hay, composted grass clippings, wood chips, pine bark, and several manufactured materials. The type of mulch to use depends to some extent on the hazard of erosion. Mulches also can be used to conserve soil moisture and to control weeds around trees, shrubs, and flowers.

Shrubs are used primarily to enhance the appearance of homesites. They also can be used to control traffic. They can be effective in dissipating the energy from raindrops and from runoff from roofs. Most native and adapted species add variety to residential settings. The effects of acidity and fertility levels vary greatly between shrub types.

Vegetable and flower gardens are important to many individuals and businesses. However, the soils in areas where homes and businesses are established may not be suited to vegetables and flowers. Soils that have been disturbed by construction may not be productive unless topsoil is applied. Soils that have slopes of more than 8 percent have poor potential for vegetable gardening because of the hazard of erosion if the soils are tilled. Generally, steeper soils have a thinner surface layer. Flower gardening is possible in the steeper areas, however, if mulches are used to help control erosion.

Incorporating composted tree leaves and grass clippings into the soil improves fertility, tilth, and moisture content. Additional information regarding vegetable crops is included under the heading “Crops and Pasture.”

Most garden plants grow best in soils that have a pH level between 5.5 and 6.5 and that have a high fertility level. Applying too much fertilizer or using fertilizers that have the wrong combination of plant nutrients can be avoided by soil testing, which is the only effective method of determining the amount and kind of fertilizer that should be applied. Information regarding soil testing can be obtained from the local office of the Cooperative Extension System, the Natural Resources Conservation Service, or from a retail fertilizer business.

Trees are important to the landscaping of homesites. Information regarding the relationships between soils and trees is available in the section “Woodland Management and Productivity.” Special assistance regarding urban forestry can be obtained from the Alabama Forestry Commission.

Woodland Management and Productivity

Jerry L. Johnson, forester, Natural Resources Conservation Service helped to prepare this section.

Woodland makes up about 288,800 acres, or about 74 percent of the total land area in Macon County. The acreage increased by about 61,900 acres between 1982 and 1990, primarily because of the planting of trees in areas that had been marginal cropland or idle land (USDA, 1985 and 1991).

Private individuals own 88 percent of the woodland in the county. The forest industry and private corporations own about 8 percent. The other 4 percent, Tuskegee National Forest, is owned by the U.S. Government (USDA, 1985). The forest types in Macon County include 2,700 acres of longleaf-slash pine, 90,900 acres of loblolly-shortleaf pine, 56,100 acres of oak-pine, 84,900 acres of oak-hickory, and 54,300 acres of oak-gum-cypress. The county has about 99,400 acres of sawtimber, 79,000 acres of poletimber, and 110,400 acres of seedlings and saplings (USDA, 1985).

Most of the soils on the Coastal Plain and the acid soils on the Blackland Prairie have a site index of 80 or more for loblolly pine. The alkaline soils on the Blackland Prairie, including Faunsdale, Maytag, Sucarnoochee, and Sumter soils, are not suited to pines. Because of long periods of ponding, the Una soils and Fluvaquents are also not suited to pines. In Macon County, most of the soils suitable for growing hardwoods, such as cherrybark oak, water oak, and Nuttall oak, have a site index of 85 or more for water oak (USDA, 1991).

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 *S*, sandy texture. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, W, D, C, and S.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

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

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

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

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

The *potential productivity* of *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 the survey area are based on published data (Beck, 1962; Briscoe and Ferrill, 1958; Broadfoot and Krinard, 1959; Broadfoot, 1963; Coile and Schumacher, 1953; TVA, 1948; USDA, 1976)

The *volume* 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 or a hardpan should be considered.

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

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

Wildlife Habitat

Tommy U. Counts, wildlife biologist, Natural Resources Conservation Service, helped to prepare this section.

Macon County is dominantly a rural area and has suitable habitat for many kinds of wildlife. The county is about 74 percent woodland and is interspersed with areas of cultivated crops, pasture, and hay.

Macon County supports a variety of mammals, reptiles, and birds. The common species of wild game in the county are eastern wild turkey, bobwhite quail, white-tailed deer, eastern cottontail rabbit, fox squirrel, gray squirrel, swamp rabbit, feral hog, mourning dove, Canada geese, and various species of ducks. The nongame wildlife species include armadillos, alligators, various venomous and nonvenomous snakes, and various species of turtles. Common furbearers include beaver, bobcat, coyote, fox, opossum, mink, muskrat, nutria, otter, raccoon, and skunk.

Marsh and wading birds include cattle egrets, great egrets, great blue herons, green-backed herons, yellow-crowned night herons, purple gallinules, common moorhens, anhinga, and white ibis. Raptors and allied species include turkey and black vulture; red-tailed, broad-winged, and red-shouldered hawks; barred and screech owls; and American kestrel. Migratory birds found in the county include bobolinks, song sparrow, pine siskin, American goldfinch, indigo bunting, northern cardinal, Carolina wren, bluebirds, and various warblers, including the yellow, pine, hooded, and prothonotary. Robins, thrushes, crows, blackbirds, blue jays, meadowlarks, mockingbirds, and various woodpeckers also inhabit the county.

The wildlife species in Macon County that the

Federal Government has listed as threatened or endangered include the red-cockaded woodpecker, bald eagle, and American alligator.

In upland areas, the woodland generally consists of loblolly pine, longleaf pine, or mixed pines and hardwoods. On the flood plains along streams and rivers, the woodland consists of bottom land hardwoods. The forest types and their associated plant communities are of major importance to wildlife. Many of these woodland areas are managed primarily to provide habitat for various species of wildlife, such as bobwhite quail, white-tailed deer, and turkey. Management practices that benefit wildlife—including prescribed burning, creating or maintaining openings in the forest, and thinning stands—are common throughout the county.

Areas of cultivated crops, hay, and pasture are commonly interspersed with the woodland. The open areas are very important to many species of wildlife. The areas of cropland primarily are used for agricultural commodities, such as cotton, corn, and soybeans. The areas of pasture and hayland generally are used for perennial grasses, such as bahiagrass, bermudagrass, and tall fescue.

Wetlands are used by many kinds of wildlife. Many of the furbearers and wading birds depend upon these areas almost exclusively. Natural depressions and areas of saturated soils along creeks and rivers, bodies of open water, and beaver ponds make up most of the wetland areas in the county. They occur mostly along Calebee, Chewacla, Choctafaula, County Line, Cubahatchee, Opintlocco, and Uphapee Creeks and in areas adjacent to the Tallapoosa River.

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, soybeans, grain sorghum, wheat, oats, 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, lespedeza, clover, 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, beggarweed, crotons, 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, blackcherry, sweetgum, hawthorn, dogwood, hickory, persimmon, sassafras, sumac, holly, and huckleberry. Examples of fruit-producing shrubs that are suitable

for planting on soils rated *good* are autumn-olive, plum, 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, redcedar, 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, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattails, rushes, sedges, reeds, barnyard grass, pondweed, 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, mourning dove, meadowlark, field sparrow, cottontail rabbit, red fox, coyote, armadillo, 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, 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 kingfisher.

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, 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, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

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

Construction Materials

Table 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 and for embankments, dikes, and levees. 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 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 wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

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

Soil Properties

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

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. 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 (ASTM, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

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

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 20.

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.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 16 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill

erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

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

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

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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). 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, Auburn, Alabama.

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 (Hajek, Adams, and Cope, 1972; USDA, 1996).

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).

Extractable bases—method of Hajek, Adams, and Cope.

Cation-exchange capacity—ammonium acetate, pH 7.0, steam distillation (5A8b).

Base saturation—method of Hajek, Adams, and Cope.

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); and 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 (USDA, 1975; Soil Survey Staff, 1998). 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. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, cation-exchange capacity, reaction, soil temperature regime, and soil depth. 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. The soils in the Cahaba series are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (USDA, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998). 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.”

Alaga Series

The Alaga series consists of very deep, somewhat excessively drained soils that formed in sandy sediments. These soils are on summits of ridges in the uplands. Slopes range from 0 to 5

percent. These soils are thermic, coated Typic Quartzipsamments.

Alaga soils are geographically associated with Luverne, Springhill and Troup soils. Luverne and Springhill soils are commonly in lower positions than the Alaga soils and do not have a thick, sandy epipedon. Troup soils are in landscape positions similar to those of the Alaga soils and have a loamy kandic horizon at a depth of 40 to 80 inches.

Typical pedon of Alaga loamy fine sand, in a area of Troup-Alaga complex, 0 to 5 percent slopes; about 3 miles north of Creek Stand; 1,700 feet west and 2,500 feet south of the northeast corner of sec. 5, T. 16 N., R. 26 E.

Ap—0 to 8 inches; brown (10YR 4/3) loamy fine sand; single grained; loose; many fine roots; moderately acid; clear wavy boundary.

C1—8 to 28 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; common fine roots; moderately acid; clear wavy boundary.

C2—28 to 50 inches; very pale brown (10YR 7/4) loamy fine sand; single grained; loose; strongly acid; gradual wavy boundary.

C3—50 to 83 inches; very pale brown (10YR 8/3) loamy fine sand; single grained; loose; common streaks of clean sand grains; strongly acid; gradual wavy boundary.

C4—83 to 90 inches; very pale brown (10YR 7/3) loamy sand; single grained; loose; strongly acid.

The combined thickness of the sandy horizons is more than 80 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except in areas where lime has been applied.

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

The C horizon has hue of 10YR, value of 4 to 8 and chroma of 3 to 6. It is loamy fine sand, fine sand, loamy sand, or sand.

Altavista Series

The Altavista series consists of very deep, moderately well drained soils that formed in loamy fluvial sediments (fig. 13). These soils are on low stream terraces adjacent to the Tallapoosa River. They are subject to brief, rare flooding during periods of unusually high rainfall. Slopes range from 0 to 2 percent. These soils are fine-loamy, mixed, semiactive, thermic Aquic Hapludults.

Altavista soils are geographically associated with Cahaba, Riverview, Roanoke, and Toccoa soils. Cahaba soils are in slightly higher, more convex positions than the Altavista soils and have a reddish argillic horizon. The poorly drained Roanoke soils are in the lower positions. Riverview and Toccoa soils are on natural levees at the lower elevations and do not have an argillic horizon.

Typical pedon of Altavista silt loam, 0 to 2 percent slopes, rarely flooded; about 2.6 miles northwest of Shorter; 2,000 feet east and 2,200 feet south of the northwest corner of sec. 27, T. 17 N., R. 24 E.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; very friable; many fine and medium roots; common fine flakes of mica; slightly acid; clear smooth boundary.

Bt1—7 to 20 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many very fine flakes of mica; few medium distinct very dark gray (10YR 3/1) coatings of iron and manganese oxides on faces of some peds; very strongly acid; clear wavy boundary.

Bt2—20 to 32 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on horizontal and vertical faces of peds; common fine flakes of mica; common medium distinct very dark gray (10YR 3/1) coatings of iron and manganese oxides on faces of some peds; common fine faint pale brown (10YR 6/3) iron depletions; very strongly acid; clear wavy boundary.

Bt3—32 to 52 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of some peds; common fine flakes of mica; common fine and medium distinct very dark gray (10YR 3/1) coatings of iron and manganese oxides on faces of some peds; few medium faint dark yellowish brown (10YR 4/6) masses of iron accumulation; few medium distinct light gray (10YR 6/1) iron depletions; very strongly acid; clear wavy boundary.

Bt4—52 to 62 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of some peds; many fine flakes of mica; many fine and medium distinct very dark gray (10YR 3/1) coatings of iron and manganese oxides on faces of some peds and within the matrix; few medium faint dark yellowish brown (10YR 4/6) masses of iron accumulation; few medium distinct light gray (10YR 6/1) iron depletions; strongly acid; clear wavy boundary.

BC—62 to 80 inches; brown (10YR 4/3) loam; weak

coarse prisms that part to weak medium subangular blocky structure; friable; many very fine flakes of mica; many fine and medium very dark gray (10YR 3/1) coatings of iron and manganese oxides on faces of some peds and within the matrix; few fine soft black masses of iron and manganese oxides; very strongly acid.

The thickness of the solum ranges from 38 to more than 60 inches. Reaction ranges from extremely 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, value of 3 or 4, and chroma of 2 to 4.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It has few or common redoximorphic accumulations in shades of yellow, brown, and red and redoximorphic depletions in shades of gray or brown. It is silty clay loam, clay loam, loam, or sandy clay loam.

The BC horizon, where present, has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8. It has few to many redoximorphic accumulations in shades of red, brown, and yellow and redoximorphic depletions in shades of gray or brown. It is loam, sandy loam, or sandy clay loam.

Bama Series

The Bama series consists of very deep, well drained soils that formed in loamy sediments (fig. 14). These soils are on the summits of ancient stream terraces along the Tallapoosa River. Slopes range from 0 to 5 percent. These soils are fine-loamy, siliceous, subactive, thermic Typic Paleudults.

Bama soils are geographically associated with Malbis and Red Bay soils. Malbis soils are in positions similar to those of the Bama soils and have hue of 7.5YR or yellower in the upper part of the argillic horizon. Red Bay soils are in positions similar to those of the Bama soils but are at higher elevations and have a dark red and dusky red kandic horizon.

Typical pedon of Bama fine sandy loam, 0 to 2 percent slopes; in Shorter, about 2 miles west of the old school building; 420 feet north and 2,600 feet east of the southwest corner of sec. 2, T. 16 N., R. 21 E.

Ap1—0 to 2 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 2 percent ironstone nodules up to 1/4 inch in diameter; strongly acid; clear smooth boundary.

Ap2—2 to 8 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 2 percent ironstone nodules up to 1/4 inch in diameter; strongly acid; clear smooth boundary.

E—8 to 14 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and medium roots; common thin streaks of strong brown (7.5YR 5/6) fine sandy loam; about 2 percent ironstone nodules up to 1/4 inch in diameter; moderately acid; clear wavy boundary.

Bt1—14 to 19 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 2 percent ironstone nodules up to 1/4 inch in diameter; moderately acid; clear wavy boundary.

Bt2—19 to 36 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 2 percent ironstone nodules up to 1/4 inch in diameter; moderately acid; clear wavy boundary.

Bt3—36 to 66 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct clay films on faces of peds; about 2 percent ironstone nodules up to 1/4 inch in diameter; common medium prominent yellowish brown (10YR 5/6) and few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; strongly acid; clear wavy boundary.

Bt4—66 to 80 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine distinct red (2.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; strongly acid.

The solum is more than 60 inches thick. Reaction ranges from very strongly acid to moderately acid throughout the profile, except in areas where the surface layer has been limed. The content of rounded quartzite pebbles or ironstone nodules ranges from 0 to 5 percent throughout the solum.

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

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It is fine sandy loam or sandy loam.

The Bt horizon commonly has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. The

quantity of redoximorphic features in shades of brown and red ranges from none to common. The features are relict. The texture is loam, sandy clay loam, or clay loam.

Bethera Series

The Bethera series consists of very deep, poorly drained soils that formed in clayey sediments. These soils are on low stream terraces and flood plains. They are subject to frequent flooding for brief periods, usually in winter and spring. Slopes are 0 to 1 percent. These soils are fine, mixed, semiactive, thermic Typic Paleaquults.

Bethera soils are geographically associated with Cahaba, Eunola, Lynchburg, and Riverview soils. The well drained Cahaba soils, the moderately well drained Eunola soils, and the somewhat poorly drained Lynchburg soils are at the slightly higher elevations on adjacent low terraces. The well drained, loamy Riverview soils are on high parts of natural levees.

Typical pedon of Bethera clay loam, 0 to 1 percent slopes, frequently flooded; about 2.5 miles north-northeast of Pleasant Hill; 1,800 feet east and 3,400 feet south of the northwest corner of sec. 1, T. 17 N., R. 24 E.

A—0 to 2 inches; dark gray (10YR 4/1) clay loam; weak medium subangular blocky structure; firm; many fine roots; very strongly acid; abrupt wavy boundary.

Btg1—2 to 7 inches; gray (10YR 6/1) clay loam; moderate medium subangular blocky structure; firm; many fine roots; few faint clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg2—7 to 28 inches; gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg3—28 to 42 inches; gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg4—42 to 60 inches; gray (10YR 6/1) clay; weak coarse subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid.

The thickness of the solum is 60 inches or more. 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 or 2.5Y, value of 2 to 4, and chroma of 1 or 2.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of red, yellow, and brown. It is clay, clay loam, or sandy clay.

Bigbee Series

The Bigbee series consists of very deep, excessively drained soils that formed in sandy alluvium. These soils are on low terraces and on high parts of natural levees adjacent to the Tallapoosa River and other large streams. They are subject to brief, rare flooding during periods of unusually high rainfall. Slopes range from 1 to 3 percent. These soils are thermic, coated Typic Quartzipsamments.

Bigbee soils are geographically associated with Bruno, Cahaba, Eunola, Riverview, and Toccoa soils. The Bruno, Riverview, and Toccoa soils are in positions similar to those of the Bigbee soils on natural levees and have a higher content of clay in the subsoil and substratum. Cahaba and Eunola soils are in slightly higher positions on terraces than the Bigbee soils and have a loamy argillic horizon.

Typical pedon of Bigbee loamy sand, 1 to 3 percent slopes, rarely flooded; about 1.2 miles south-southwest of Pleasant Hill; 600 feet east and 900 feet south of the northwest corner of sec. 27, T. 17 N., R. 24 E.

Ap1—0 to 5 inches; dark yellowish brown (10YR 3/4) loamy sand; weak fine granular structure; very friable; many fine and medium roots; about 2 percent rounded quartzite pebbles; very strongly acid; clear wavy boundary.

Ap2—5 to 11 inches; dark yellowish brown (10YR 4/4) loamy sand; single grained; loose; many fine and medium roots; about 2 percent rounded quartzite pebbles; very strongly acid; gradual wavy boundary.

C1—11 to 25 inches; brown (7.5YR 4/4) loamy sand; single grained; loose; many fine and medium roots; about 5 percent rounded quartzite pebbles; very strongly acid; gradual wavy boundary.

C2—25 to 48 inches; yellowish brown (10YR 5/4)

loamy sand; single grained; loose; common fine and very fine roots; about 5 percent rounded quartzite pebbles; very strongly acid; gradual wavy boundary.

C3—48 to 64 inches; brownish yellow (10YR 6/6) sand; single grained; loose; few fine and very fine roots; about 5 percent rounded quartzite pebbles; few fine and medium distinct very pale brown (10YR 8/3) iron depletions; very strongly acid; gradual wavy boundary.

C4—64 to 84 inches; brownish yellow (10YR 6/6) sand; single grained; loose; about 5 percent rounded quartzite pebbles; common fine distinct very pale brown (10YR 8/3) iron depletions; very strongly acid.

The combined thickness of the sandy horizons is more than 80 inches. The content of rounded quartzite pebbles ranges from 2 to 10 percent throughout the profile. Reaction ranges from very strongly acid to moderately acid throughout the profile, except in areas where lime has been applied.

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

The upper part of the C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 6. It is sand, fine sand, or loamy sand. The lower part of the C horizon has hue of 10YR, value of 6 to 8, and chroma of 3 to 6. Redoximorphic features, where present, are in shades of brown, yellow, or gray. The lower part of the C horizon is sand or fine sand.

Blanton Series

The Blanton series consists of very deep, moderately well drained soils that formed in sandy and loamy sediments. These soils are on hillslopes in the uplands. Slopes range from 12 to 25 percent. These soils are loamy, siliceous, subactive, thermic Grossarenic Paleudults.

Blanton soils are geographically associated with Cowarts, Luverne, Springhill, and Wagram soils. Cowarts, Luverne, and Springhill soils are in positions similar to those of the Blanton soils and do not have a thick, sandy epipedon. Wagram soils are on summits of ridges and have a sandy epipedon that is 20 to 40 inches thick.

Typical pedon of Blanton loamy sand, in an area of Blanton-Luverne complex, 12 to 25 percent slopes; about 1.0 mile southwest of Shorter; 1,200 feet west and 4,250 feet north of the southeast corner of sec. 10, T. 16 N., R. 21 E.

A—0 to 6 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; many fine and medium roots; about 10 percent rounded quartzite pebbles; strongly acid; clear wavy boundary.

E1—6 to 33 inches; light yellowish brown (2.5Y 6/4) loamy sand; single grained; loose; many fine and medium roots; about 5 percent rounded quartzite pebbles; very strongly acid; clear wavy boundary.

E2—33 to 44 inches; pale yellow (2.5Y 7/4) loamy sand; single grained; loose; many fine and few medium roots; about 5 percent rounded quartzite pebbles; very strongly acid; clear wavy boundary.

E3—44 to 54 inches; very pale brown (10YR 7/4) loamy sand; single grained; loose; common fine and few medium roots; about 5 percent rounded quartzite pebbles; common thin streaks of clean sand; very strongly acid; clear wavy boundary.

E4—54 to 62 inches; brownish yellow (10YR 6/6) loamy sand; single grained; loose; common fine and medium roots; about 5 percent rounded quartzite pebbles; common thin streaks and small pockets of clean sand; very strongly acid; clear wavy boundary.

E5—62 to 68 inches; brownish yellow (10YR 6/8) loamy sand; single grained; loose; few fine roots; about 5 percent rounded quartzite pebbles; many thin streaks and small pockets of clean sand; very strongly acid; clear wavy boundary.

Bt1—68 to 73 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; about 5 percent rounded quartzite pebbles; many medium distinct light yellowish brown (10YR 6/4) iron depletions; very strongly acid; clear wavy boundary.

Bt2—73 to 80 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of some peds; about 5 percent rounded quartzite pebbles; common medium distinct olive yellow (2.5Y 6/8) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid.

The sandy epipedon ranges from 40 to 80 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied. The content of rounded quartzite pebbles ranges from 0 to 10 percent throughout the profile.

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

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 3 to 8. It is loamy sand, loamy fine sand, or sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. It has few to many redoximorphic accumulations in shades of brown, yellow, and red and redoximorphic depletions in shades of gray or brown. It is sandy clay loam or sandy loam.

Bonifay Series

The Bonifay series consists of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on summits of ridges in the uplands. Slopes range from 1 to 5 percent. These soils are loamy, siliceous, subactive, thermic Grossarenic Plinthic Paleudults.

Bonifay soils are geographically associated with Lucy, Orangeburg, Springhill, Troup, and Wagram soils. Lucy, Troup, and Wagram soils are in positions similar to those of the Bonifay soils. Lucy and Wagram soils have a sandy epipedon that is 20 to 40 inches thick. Troup soils have a reddish kandic horizon and do not have a significant accumulation of plinthite. Orangeburg soils are in the slightly higher positions and do not have a thick, sandy epipedon. Springhill soils are on adjacent side slopes and do not have a thick, sandy epipedon.

Typical pedon of Bonifay loamy fine sand, 1 to 5 percent slopes; about 2.5 miles south of Warriorstand; 1,550 feet west and 2,300 feet south of the northeast corner of sec. 20, T. 15 N., R. 25 E.

Ap—0 to 7 inches; brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; many fine and very fine roots; about 2 percent fine ironstone nodules; moderately acid; abrupt smooth boundary.

E1—7 to 23 inches; yellowish brown (10YR 5/4) loamy fine sand; single grained; loose; many fine and very fine roots; common thin streaks of very pale brown (10YR 7/3) sand; few fine faint rounded masses of yellowish brown (10YR 5/6) loamy sand; about 2 percent fine ironstone nodules; strongly acid; gradual wavy boundary.

E2—23 to 38 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; common fine roots; about 2 percent fine ironstone nodules; common thin streaks of clean sand; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

E3—38 to 58 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak coarse subangular blocky structure; very friable; few fine roots; about 2 percent fine ironstone nodules; common thin streaks of clean sand; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; abrupt wavy boundary.

Btv1—58 to 66 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; about 5 percent nodular plinthite; about 2 percent fine ironstone nodules; common fine faint light yellowish brown (10YR 6/4) iron depletions; very strongly acid; clear wavy boundary.

Btv2—66 to 72 inches; 30 percent yellowish brown (10YR 5/6), 30 percent light yellowish brown (10YR 6/4), 20 percent strong brown (7.5YR 5/6), and 20 percent red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; firm; common faint clay films on faces of peds; 15 percent nodular plinthite; about 2 percent fine ironstone nodules; areas of yellowish brown, strong brown, and red are masses of iron accumulation; areas of light yellowish brown are iron depletions; very strongly acid; gradual wavy boundary.

Btv3—72 to 84 inches; 20 percent yellowish brown (10YR 5/6), 20 percent light brownish gray (10YR 6/2), 20 percent light yellowish brown (10YR 6/4), 20 percent strong brown (7.5YR 5/6), and 20 percent red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; firm; common faint clay films on faces of peds; 15 percent nodular plinthite; about 2 percent fine ironstone nodules; areas of yellowish brown, strong brown, and red are masses of iron accumulation; areas of light brownish gray and light yellowish brown are iron depletions; very strongly acid.

The sandy epipedon ranges in thickness from 40 to 80 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied. The content of hard nodules of ironstone ranges from 2 to 10 percent throughout.

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 to 6. It is loamy fine sand, loamy sand, or fine sand. In most pedons, it has streaks or pockets of clean sand.

The Btv horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8; or it has no dominant matrix color and is multicolored in shades of brown, red, and gray. It has few or common redoximorphic accumulations in shades of brown, yellow, and red and redoximorphic depletions in shades of gray or brown. The content of nodular

plinthite ranges from 5 to 25 percent. The texture is sandy clay loam or sandy loam.

Bruno Series

The Bruno series consists of very deep, excessively drained soils that formed in sandy alluvium. These soils are on high parts of natural levees adjacent to stream channels. They are subject to occasional flooding for brief periods, usually in late winter and early spring. Slopes range from 0 to 3 percent. These soils are sandy, mixed, thermic Typic Udifluvents.

Bruno soils are geographically associated with Bigbee, Cahaba, Eunola, and Riverview soils. Bigbee and Riverview soils are in positions similar to those of the Bruno soils. Bigbee soils have slightly less clay and silt in the substratum than the Bruno soils. Riverview soils are fine-loamy. Cahaba and Eunola soils are on low terraces adjacent to areas of the Bruno soils and are fine-loamy.

Typical pedon of Bruno fine sandy loam in an area of Riverview-Bruno complex, 0 to 3 percent slopes, occasionally flooded; about 2 miles east of Moton Field; 100 feet west and 500 feet south of the northeast corner of sec. 16, T. 17 N., R. 24 E.

A1—0 to 5 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

A2—5 to 10 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

C1—10 to 16 inches; dark yellowish brown (10YR 4/4) loamy fine sand; single grained; loose; common fine, medium, and coarse roots; common thin strata of very pale brown (10YR 7/3) loamy very fine sand; strongly acid; clear wavy boundary.

C2—16 to 32 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; common fine, medium, and coarse roots; common thin strata of very pale brown (10YR 7/3) loamy very fine sand and fine sandy loam; strongly acid; clear wavy boundary.

C3—32 to 51 inches; pale brown (10YR 6/3) sand; single grained; loose; few fine and medium roots; strongly acid; gradual wavy boundary.

C4—51 to 60 inches; pale brown (10YR 6/3) sand; single grained; loose; few fine distinct brownish yellow (10YR 6/8) masses of iron accumulation; strongly acid.

Reaction ranges from strongly acid to moderately acid throughout the profile, except in areas where lime has been applied.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. The texture is fine sandy loam in the A1 horizon and loam, fine sandy loam, sandy loam, or loamy sand in the A2 horizon.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It has few or common redoximorphic features in shades of brown or gray in the lower part of the horizon. The texture is sand, loamy sand, or loamy fine sand. Thin strata of finer-textured materials occur throughout the horizon.

Cahaba Series

The Cahaba series consists of very deep, well drained soils that formed in loamy and sandy alluvium. These soils are on low stream terraces. They are subject to rare flooding during periods of unusually heavy and prolonged rainfall. Slopes range from 0 to 2 percent. These soils are fine-loamy, siliceous, semiactive, thermic Typic Hapludults.

Cahaba soils are geographically associated with Bigbee, Dogue, Eunola, and Myatt soils. Bigbee soils are in the slightly lower positions on low terraces and on high parts of natural levees and are sandy throughout. The moderately well drained Dogue and Eunola soils are in slightly lower, less convex positions than the Cahaba soils. Dogue soils have a clayey argillic horizon. Eunola soils have a brownish subsoil. The poorly drained Myatt soils are in lower positions than those of the Cahaba soils and have a grayish subsoil.

Typical pedon of Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded; about 0.3 mile north of Tysonville; 2,570 feet east and 140 feet south of the northwest corner of sec. 6, T. 16 N., R. 21 E.

Ap—0 to 7 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few wormcasts; moderately acid; clear smooth boundary.

A/B—7 to 12 inches; 70 percent dark yellowish brown (10YR 4/4) sandy loam (A); weak fine granular structure; very friable; 30 percent yellowish red (5YR 4/6) sandy loam (B); weak medium subangular blocky structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

Bt1—12 to 30 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds and in pores; moderately acid; gradual wavy boundary.

Bt2—30 to 48 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; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; gradual wavy boundary.

C1—48 to 65 inches; strong brown (7.5YR 4/6) sandy loam; massive; very friable; few fine roots; common fine flakes of mica; common medium distinct brownish yellow (10YR 6/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; gradual wavy boundary.

C2—65 to 80 inches; strong brown (7.5YR 5/6) sandy loam; massive; very friable; few fine roots; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 36 to 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the profile, except in areas where the surface layer has been limed.

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

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

The C horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is commonly stratified with sandy and loamy material or has texture of fine sandy loam, sandy loam, or loamy sand. In some pedons, it has strata of gravel or sand. In some pedons, it has few or common redoximorphic accumulations in shades of yellow and brown. The accumulations are relict features.

Compass Series

The Compass series consists of very deep, moderately well drained soils that formed in loamy sediments. These soils are on summits of broad ridges and on high stream terraces. Slopes range from 1 to 3 percent. These soils are coarse-loamy, siliceous, subactive, thermic Plinthic Paleudults.

Compass soils are geographically associated with Cowarts, Marvyn, and Uchee soils. Cowarts soils are on side slopes adjacent to areas of Compass soils and are fine-loamy. Marvyn soils are on broad ridges at higher elevations than Compass soils and are fine-loamy. Uchee soils are on narrow ridges and hillslopes at higher elevations than the Compass soils and have a thick, sandy epipedon.

Typical pedon of Compass loamy sand, 1 to 3 percent slopes; about 1 mile east-southeast of Franklin; 2,100 feet east and 2,500 feet south of the northwest corner of sec. 8, T. 17 N., R. 23 E.

Ap1—0 to 7 inches; brown (10YR 4/3) loamy sand; single grained; loose; many medium and fine roots; about 5 percent, by volume, rounded quartzite pebbles; strongly acid; clear smooth boundary.

Ap2—7 to 11 inches; 60 percent brown (10YR 4/3) and 40 percent brown (10YR 5/3) loamy sand; weak coarse subangular blocky structure; very friable; many fine and medium roots; about 5 percent, by volume, rounded quartzite pebbles; strongly acid; clear smooth boundary.

Bt1—11 to 23 inches; yellowish brown (10YR 5/6) sandy loam; weak coarse subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; about 5 percent, by volume, rounded quartzite pebbles; strongly acid; clear smooth boundary.

Bt2—23 to 31 inches; yellowish brown (10YR 5/6) sandy loam; weak coarse subangular blocky structure; friable; common fine and medium roots; few faint clay films on ped faces; about 5 percent, by volume, rounded quartzite pebbles; few medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; few fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear smooth boundary.

Btv1—31 to 40 inches; yellowish brown (10YR 5/6) sandy loam; weak thick platy structure; friable; common fine and medium roots; few faint clay films on ped faces; about 7 percent nodular plinthite; about 5 percent, by volume, rounded quartzite pebbles; common medium prominent yellowish red (5YR 4/6) and common coarse distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; common fine distinct light brownish gray (10YR 6/2) clay depletions; strongly acid; clear smooth boundary.

Btv2—40 to 48 inches; sandy loam, dark yellowish brown (10YR 4/4) interior and light yellowish brown (2.5Y 6/4) exterior; weak coarse prismatic structure parting to moderate medium subangular blocky; friable, slightly brittle; few fine and very fine roots; few faint clay films on ped faces; about 8 percent nodular plinthite; about 5 percent rounded quartzite pebbles; few medium prominent yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear smooth boundary.

Btv3—48 to 53 inches; strong brown (7.5YR 5/6) sandy loam; weak coarse prisms parting to moderate medium subangular blocky structure; friable, slightly brittle; few fine and very fine roots;

few faint clay films on faces of peds; about 15 percent nodular plinthite; about 5 percent rounded quartzite pebbles; thin seams of clay depletions consisting of light yellowish brown (2.5Y 6/4) fine sandy loam on vertical faces of prisms; common medium faint grayish brown (10YR 5/2) iron depletions; strongly acid; abrupt smooth boundary.

Btv4—53 to 65 inches; 30 percent yellowish red (5YR 4/6), 30 percent strong brown (7.5YR 5/6), 20 percent yellowish brown (10YR 5/6), and 20 percent light brownish gray (10YR 6/2) sandy loam; weak very coarse prismatic structure; friable, slightly brittle; few faint clay films on faces of peds; about 5 percent nodular plinthite; about 5 percent rounded quartzite pebbles; areas of yellowish red, strong brown, and yellowish brown are masses of iron accumulation; areas of light brownish gray are iron depletions; strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed. The content of quartzite pebbles ranges from 0 to about 10 percent throughout the profile.

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

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is loamy sand or loamy fine sand.

The upper part of the Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8. It is sandy loam or fine sandy loam. The lower part of the Bt horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 6 to 8. It has few or common redoximorphic accumulations in shades of brown, yellow, or red and few redoximorphic depletions in shades of brown and gray. The Bt horizon is fine sandy loam, sandy loam, or sandy clay loam.

The Btv horizon dominantly has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8. In some pedons, however, the lower part of the horizon does not have a dominant matrix color and is multicolored in shades of brown, red, and gray. The content of nodular plinthite ranges from 5 to 15 percent. The Btv horizon has few to many redoximorphic accumulations in shades of brown, yellow, or red and few or common redoximorphic depletions in shades of brown or gray. It is sandy loam, fine sandy loam, or sandy clay loam.

Conecuh Series

The Conecuh series consists of very deep, moderately well drained soils that formed in clayey marine sediments. These soils are on summits and side slopes of broad ridges in the uplands. Slopes range from 1 to 8 percent. These soils are fine, smectitic, thermic Vertic Hapludults.

Conecuh soils are geographically associated with Gritney, Hannon, Luverne, and Oktibbeha soils. Gritney, Hannon, and Oktibbeha soils are in positions similar to those of the Conecuh soils but are at lower elevations. Gritney soils have mixed mineralogy. Hannon soils have accumulations of calcium carbonate in the upper part of the solum. Oktibbeha soils have accumulations of calcium carbonate in the lower part of the solum. Luverne soils are on ridges and hillslopes at the higher elevations and have mixed mineralogy.

Typical pedon of Conecuh fine sandy loam, 1 to 3 percent slopes; in pine woodland, about 4.1 miles southeast of Shorter; 2,100 feet east and 1,000 feet north of the southwest corner of sec. 16, T. 16 N., R. 22 E.

Ap—0 to 3 inches; brown (7.5YR 4/2) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

Bt1—3 to 17 inches; red (2.5YR 4/6) clay; moderate fine angular blocky structure; firm; common fine and medium roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—17 to 22 inches; red (2.5YR 4/6) clay; strong fine angular blocky structure; firm; common distinct clay films on faces of peds; common medium prominent light gray (10YR 7/1) iron depletions; very strongly acid; clear wavy boundary.

Bt3—22 to 32 inches; red (2.5YR 4/8) clay; strong fine angular blocky structure; firm; common distinct clay films on faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; many medium prominent light olive gray (5Y 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bt4—32 to 40 inches; yellowish red (5YR 5/6) clay; strong fine angular blocky structure; firm; common faint clay films on faces of peds; common medium prominent light olive brown (2.5Y 5/6), red (2.5YR 4/8), and yellowish brown (10YR 5/6) masses of iron accumulation; common medium prominent light olive gray (5Y 6/2) iron depletions; very strongly acid; clear wavy boundary.

BC—40 to 47 inches; pale olive (5Y 6/3) clay loam; moderate fine and medium angular blocky structure; firm; common medium prominent strong brown (7.5YR 5/6) and few fine distinct pale yellow (2.5Y 7/4) masses of iron accumulation; common medium faint light brownish gray (2.5Y 6/2) iron

depletions; very strongly acid; clear wavy boundary.

C1—47 to 55 inches; pale olive (5Y 6/3) clay loam; moderate medium platy rock structure; firm; common medium distinct light olive brown (2.5Y 5/6) and few medium distinct pale yellow (2.5Y 7/4) masses of iron accumulation; 10 percent fragments of soft, clayey shale; very strongly acid; clear wavy boundary.

C2—55 to 60 inches; pale olive (5Y 6/4) clay loam; moderate medium platy rock structure; firm; common medium distinct light olive brown (2.5Y 5/6) and few medium distinct pale yellow (2.5Y 7/4) masses of iron accumulation; about 15 percent fragments of soft, clayey shale; 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 A or Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The BA or BE horizon, where present, ranges from 2 to 5 inches in thickness. It has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is loam, clay loam, or sandy clay loam.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of red, yellow, and brown ranges from none to common. The quantity of redoximorphic depletions in shades of gray or brown also ranges from none to common. The texture is commonly clay but ranges to silty clay and silty clay loam. The lower part of the Bt horizon has the same range in color as the upper part, or it has no dominant matrix color and is multicolored in shades of red, yellow, brown, and gray. It has common or many redoximorphic accumulations in shades of red and brown and common or many redoximorphic depletions in shades of gray or brown. It is clay or silty clay.

The BC or CB horizon, where present, has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 to 4 and has redoximorphic features in shades of brown, yellow, and gray; or it has no dominant matrix color and is multicolored in shades of gray, red, yellow, and brown. It is clay loam, silty clay loam, or silty clay.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 7, and chroma of 2 to 6; or it has no dominant matrix color and is multicolored in shades of red, yellow, brown, and gray. It is massive or has platy rock structure. It has few to many redoximorphic accumulations in shades of red, yellow, and brown and few to many redoximorphic depletions in shades of gray or brown. The texture commonly ranges from sandy loam to clay. In some pedons, however, the C horizon is clayey shale.

Cowarts Series

The Cowarts series consists of very deep, well drained soils that formed in loamy sediments. These soils are on summits of narrow ridges and on side slopes in the uplands. Slopes range from 5 to 25 percent. These soils are fine-loamy, kaolinitic, thermic Typic Kanhapludults.

Cowarts soils are geographically associated with Compass, Marvyn, Springhill, and Uchee soils. Compass soils are on summits of broad ridges and on terraces and are coarse-loamy. Marvyn soils are on summits of broad ridges at slightly higher elevations than the Cowarts soils and have a solum that is more then 40 inches thick. Springhill and Uchee soils are in positions similar to those of the Cowarts soils. Springhill soils have a reddish subsoil. Uchee soils have a thick, sandy epipedon.

Typical pedon of Cowarts loamy sand, 5 to 15 percent slopes, eroded; about 0.75 mile northwest of Alliance; 400 feet east and 1,550 feet south of the northwest corner of sec. 5, T. 17 N., R. 25 E.

Ap—0 to 6 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; 5 percent quartzite pebbles; moderately acid; abrupt smooth boundary.

EB—6 to 10 inches; yellowish brown (10YR 5/6) loamy sand; weak medium subangular blocky structure; very friable; many fine and medium roots; 5 percent quartzite pebbles; strongly acid; abrupt smooth boundary.

Bt1—10 to 18 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots and few coarse roots; few faint clay films on faces of peds; 5 percent quartzite pebbles; few medium prominent light red (2.5YR 6/8) and common medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation that are relict redoximorphic features; strongly acid; clear wavy boundary.

Bt2—18 to 29 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine, medium, and coarse roots; common faint clay films on faces of peds; 5 percent quartzite pebbles; common medium distinct reddish yellow (7.5YR 6/8) and prominent red (2.5YR 4/8) masses of iron

accumulation that are relict redoximorphic features; strongly acid; clear irregular boundary.

BC—29 to 39 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable, slightly brittle; 5 percent quartzite pebbles; common medium faint yellowish brown (10YR 5/8) and common medium prominent yellowish red (5YR 5/8) masses of iron accumulation and few medium distinct light gray (10YR 7/1) iron depletions that are relict redoximorphic features; strongly acid; clear wavy boundary.

C—39 to 60 inches; 35 percent red (2.5YR 4/6), 35 percent brownish yellow (10YR 6/8), 15 percent light gray (10YR 7/1), and 15 percent strong brown (7.5YR 5/6) sandy clay loam; massive; firm; 5 percent quartzite pebbles; common pockets and streaks of coarser- and finer-textured material; areas of red, brownish yellow, and strong brown are relict redoximorphic accumulations; areas of light gray are relict redoximorphic depletions; strongly acid.

The thickness of the solum ranges from 20 to 40 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed. The content of quartzite pebbles ranges from 2 to 15 percent in the A, E, and C horizons and from 2 to 10 percent in the B horizon.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. It is loamy sand or sandy loam.

The E or EB horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 4 to 6. It is sandy loam or loamy sand.

The Bt horizon commonly has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. In some pedons, however, it has hue of 7.5YR, value of 4 or 5, and chroma of 4 to 6. In some pedons, it has relict redoximorphic accumulations in shades of red, brown, and yellow and redoximorphic depletions in shades of gray. It is sandy clay loam or clay loam. The content of nodular plinthite ranges from 0 to 4 percent.

The BC horizon, where present, has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, yellow, red, and gray. It is sandy loam, clay loam, sandy clay loam, or sandy clay.

The C horizon has the same range in color as the BC horizon. The texture varies, ranging from loamy sand to clay, and is commonly stratified with finer- and coarser-textured materials. In some pedons, the C horizon has thin strata of gravel.

Dogue Series

The Dogue series consists of very deep, moderately well drained soils that formed in clayey and loamy fluvial sediments. These soils are on low stream terraces adjacent to major streams. They are subject to rare flooding during periods of unusually heavy or prolonged rainfall. Slopes range from 0 to 2 percent. These soils are fine, mixed, semiactive, thermic Aquic Hapludults.

Dogue soils are geographically associated with Cahaba, Eunola, Goldsboro, Lynchburg, and Myatt soils. Cahaba soils are in slightly higher positions than the Dogue soils and have a reddish, fine-loamy argillic horizon. Eunola and Goldsboro soils are in positions similar to those of the Dogue soils and are fine-loamy. The somewhat poorly drained Lynchburg soils and the poorly drained Myatt soils are in lower positions than the Dogue soils and are fine-loamy.

Typical pedon of Dogue fine sandy loam, 0 to 2 percent slopes, rarely flooded; about 1 mile northeast of Tuskegee; 1,150 feet south and 900 feet east of the northwest corner of sec. 16, T. 17 N., R. 24 E.

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bt1—6 to 10 inches; dark yellowish brown (10YR 4/6) clay loam; weak fine and medium subangular blocky structure; firm; common fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; clear wavy boundary.

Bt2—10 to 22 inches; strong brown (7.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; few medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual wavy boundary.

Bt3—22 to 34 inches; dark yellowish brown (10YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; common medium distinct gray (10YR 6/1) iron depletions; strongly acid; gradual wavy boundary.

Bt4—34 to 44 inches; strong brown (7.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; few fine flakes of mica; common medium distinct light brownish gray (10YR 6/2) iron

depletions; very strongly acid; abrupt wavy boundary.

BC—44 to 58 inches; strong brown (7.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; friable; few faint clay films on faces of some peds; common fine flakes of mica; many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; few medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

C—58 to 72 inches; yellowish brown (10YR 5/6) sandy loam; massive; many fine flakes of mica; many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid.

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

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, 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. It has few or common redoximorphic accumulations in shades of yellow, brown, and red and few or common redoximorphic depletions in shades of gray or brown. It is clay loam, clay, or sandy clay.

The BC horizon, where present, has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. It has common or many redoximorphic accumulations in shades of red and yellow and common or many redoximorphic depletions in shades of gray or brown. It is sandy clay, sandy clay loam, or sandy loam.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. It has common or many redoximorphic accumulations in shades of brown, red, and yellow and common redoximorphic depletions in shades of gray or brown. It is loamy sand, sandy loam, or loam.

Eunola Series

The Eunola series consists of very deep, moderately well drained soils that formed in loamy and sandy fluvial sediments. These soils are on low stream terraces that are adjacent to major streams. They are subject to rare flooding during periods of unusually heavy and prolonged rainfall. Slopes range from 0 to 2 percent. These soils are fine-loamy, siliceous, semiactive, thermic Aquic Hapludults.

Eunola soils are geographically associated with Bethera, Bigbee, Cahaba, Dogue, Kinston, and Myatt soils. The poorly drained Bethera and Kinston soils are on flood plains adjacent to areas of the Eunola soils. Bigbee, Cahaba, and Dogue soils are in positions similar to those of the Eunola soils. Bigbee soils are sandy throughout. Cahaba soils have a reddish argillic horizon. Dogue soils have a clayey argillic horizon. The poorly drained Myatt soils are in lower positions on the terraces than the Eunola soils.

Typical pedon of Eunola fine sandy loam, 0 to 2 percent slopes, rarely flooded; about 2.4 miles southeast of Moton Field; 850 feet north and 1,600 feet west of the southeast corner of sec. 21, T. 17 N., R. 24 E.

Ap1—0 to 3 inches; dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; very friable; many fine roots; about 5 percent fine quartzite pebbles; strongly acid; abrupt wavy boundary.

Ap2—3 to 7 inches; brown (10YR 5/3) fine sandy loam; weak medium subangular blocky structure; very friable; many fine and few medium roots; about 5 percent fine quartzite pebbles; very strongly acid; gradual wavy boundary.

E—7 to 10 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; about 5 percent fine quartzite pebbles; strongly acid; gradual wavy boundary.

Bt1—10 to 14 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; few faint clay films on faces of some peds; about 5 percent fine quartzite pebbles; strongly acid; gradual wavy boundary.

Bt2—14 to 22 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure parting to moderate medium subangular blocky; friable; few fine and medium roots; few fine wormcasts; few faint clay films on faces of some peds; about 5 percent fine quartzite pebbles; common medium prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine distinct very pale brown (10YR 7/3) iron depletions; strongly acid; gradual wavy boundary.

Bt3—22 to 31 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; about 5 percent fine quartzite pebbles; common medium prominent yellowish red (5YR 4/6) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual wavy boundary.

Bt4—31 to 52 inches; brownish yellow (10YR 6/6)

sandy clay loam; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; friable; few fine roots; few faint clay films on faces of some peds; about 5 percent fine quartzite pebbles; many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; common medium distinct light gray (10YR 7/2) iron depletions; strongly acid; clear wavy boundary.

BC—52 to 60 inches; 40 percent strong brown (7.5YR 4/6), 30 percent light gray (10YR 7/2), and 30 percent very pale brown (10YR 7/3) sandy loam; weak coarse subangular blocky structure; very friable; about 10 percent fine quartzite pebbles; areas of strong brown are masses of iron accumulation; areas of light gray and very pale brown are iron depletions; strongly acid; clear wavy boundary.

2C—60 to 72 inches; strong brown (7.5YR 5/8) loamy sand; single grained; loose; about 10 percent fine quartzite pebbles; common medium prominent light brownish gray (10YR 6/2) iron depletions; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; 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 the surface layer has been limed. The content of quartzite pebbles ranges from 2 to 15 percent throughout the profile.

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

The E horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4. It is fine sandy loam or sandy 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. In some pedons, it has few or common redoximorphic accumulations in shades of brown and red and few or common redoximorphic depletions in shades of gray. It is sandy clay loam, clay loam, or sandy loam. The lower part of the Bt horizon has hue of 10YR, value of 4 to 6, and chroma of 4 to 6. It has common or many redoximorphic accumulations in shades of brown, red, and yellow and common or many redoximorphic depletions in shades of gray or brown. It is sandy clay loam or clay loam.

The BC horizon, where present, commonly has no dominant matrix color and is multicolored in shades of yellow, red, brown, and gray. It is sandy loam or sandy clay loam.

The 2C horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. It has common or many redoximorphic accumulations in shades of brown and red and redoximorphic depletions in shades of gray. In some pedons, it has no dominant matrix color and is multicolored in shades of yellow, red, brown, and gray. It is sandy loam, loamy sand, or sand. It commonly has pockets or thin strata of finer- and coarser-textured materials.

Faunsdale Series

The Faunsdale series consist of very deep, somewhat poorly drained soils on concave side slopes and toeslopes of the Blackland Prairie. These soils formed in alkaline clay and the underlying chalk and marl. Slopes range from 1 to 3 percent. These soils are fine, smectitic, thermic Aquic Hapluderts.

Faunsdale soils are geographically associated with Hannon, Maytag, Sucarnoochee, and Vaiden soils. Hannon, Maytag, and Vaiden soils are in higher positions than those of the Faunsdale soils. Hannon soils have reddish, acid horizons in the upper part of the subsoil. Maytag soils are moderately well drained. Vaiden soils have a brownish, acid subsoil. Sucarnoochee soils are on flood plains adjacent to areas of the Faunsdale soils and are subject to frequent flooding.

Typical pedon of Faunsdale clay loam, 1 to 3 percent slopes; about 2 miles southeast of Hardaway; 2,500 feet west and 1,000 feet south of the northeast corner of sec. 27, T. 15 N., R. 22 E.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) clay loam; moderate fine granular structure; firm; common fine and medium roots; neutral; abrupt wavy boundary.

A—9 to 17 inches; dark grayish brown (10YR 4/2) silty clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few fine soft black masses of iron and manganese oxides; slightly alkaline; clear wavy boundary.

Bss1—17 to 29 inches; brown (10YR 4/3) silty clay; weak coarse angular blocky structure parting to moderate fine and medium angular blocky; firm; common fine roots; few large intersecting slickensides that have distinct polished and grooved surfaces; common fine concretions and soft black masses of iron and manganese oxides; common medium distinct grayish brown (2.5Y 5/2) iron depletions; moderately alkaline; gradual wavy boundary.

Bss2—29 to 45 inches; olive brown (2.5Y 4/3) silty clay; weak coarse angular blocky structure parting to moderate fine angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common large

wedge-shaped aggregates; common medium concretions and soft black masses of iron and manganese oxides; common medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; common medium faint gray (2.5Y 5/1) iron depletions; weakly effervescent; moderately alkaline; gradual wavy boundary.

Bkss1—45 to 60 inches; silty clay, light olive brown (2.5Y 5/6) interior and olive (5Y 5/3) exterior; strong coarse angular blocky structure parting to moderate fine angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common large wedge-shaped aggregates; common fine and medium concretions and soft masses of calcium carbonate; few fine concretions of iron and manganese oxides; common medium distinct grayish brown (2.5Y 5/2) and dark gray (5Y 4/1) iron depletions; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss2—60 to 80 inches; silty clay, olive (5Y 5/6) interior and olive (5Y 4/3) exterior; strong coarse angular blocky structure parting to strong fine angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common large wedge-shaped aggregates; many fine and medium concretions and soft masses of calcium carbonate; few fine concretions of iron and manganese oxides; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation; strongly effervescent; moderately alkaline.

The thickness of the solum is more than 40 inches, and the depth to bedrock is more than 60 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. It is neutral or slightly alkaline.

The Bss horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. It has few to many redoximorphic accumulations in shades of brown and olive and few to many redoximorphic depletions in shades of gray. It has common or many soft masses and/or concretions of iron and manganese oxides. It is clay loam, silty clay loam, silty clay, or clay. It is slightly alkaline or moderately alkaline.

The Bkss horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 3 to 6. It has few or common redoximorphic accumulations in shades of brown and olive and few or common redoximorphic depletions in shades of gray. It is clay loam, silty clay loam, silty clay, or clay. It is moderately alkaline.

The C horizon, where present, has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 1 to 3. It has few to many redoximorphic accumulations in shades of brown and olive. It is silty clay loam, silty clay, or clay. It is moderately alkaline.

The Cr horizon, where present, is stratified chalk and marl. It is massive or has platy rock structure. It can be dug with difficulty using hand tools and is rippable by light machinery.

Goldsboro Series

The Goldsboro series consists of very deep, moderately well drained soils that formed in loamy sediments. These soils are on low terraces adjacent to major streams. Slopes range from 0 to 2 percent. These soils are fine-loamy, siliceous, subactive, thermic Aquic Paleudults.

Goldsboro soils are geographically associated with Dogue, Gritney, Lynchburg, Ocilla, and Pelham soils. Dogue soils are in slightly lower positions than the Goldsboro soils and have a clayey argillic horizon. Gritney soils are in higher positions than the Goldsboro soils and have a clayey argillic horizon. The somewhat poorly drained Lynchburg and Ocilla soils and the poorly drained Pelham soils are in slightly lower positions than the Goldsboro soils. Ocilla and Pelham soils have a sandy epipedon that is 20 to 40 inches thick.

Typical pedon of Goldsboro loamy fine sand, 0 to 2 percent slopes; about 2 miles north of Hardaway; 225 feet west and 100 feet south of the northeast corner of sec. 11, T. 15 N., R. 22 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

E—6 to 11 inches; pale brown (10YR 6/3) loamy fine sand; weak coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt wavy boundary.

Bt1—11 to 20 inches; light olive brown (2.5Y 5/4) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; common faint clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; few fine distinct grayish brown (10YR 5/2) iron depletions; strongly acid; gradual wavy boundary.

Bt2—20 to 31 inches; light olive brown (2.5Y 5/4) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; common faint clay films on faces of peds; few medium prominent red (2.5YR 4/6) and strong brown (7.5YR 4/6) masses of iron accumulation; common medium distinct light brownish gray

(10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Btg1—31 to 41 inches; light brownish gray (10YR 6/2) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8), strong brown (7.5YR 4/6), and red (2.5YR 4/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg2—41 to 72 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and dark red (10R 3/6) masses of iron accumulation; very strongly acid.

The solum is more than 60 inches thick. 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 2 to 4.

The E horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4. It is loamy fine sand, fine sandy loam, or sandy loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of brown and red is none or few in the upper part and few or common in the lower part. The quantity of redoximorphic depletions in shades of gray is none or few in the upper part and few or common in the lower part. The texture is sandy loam or sandy clay loam.

The Btg horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of red and brown. It is clay loam, sandy clay loam, or sandy clay.

Gritney Series

The Gritney series consists of very deep, moderately well drained soils that formed in clayey marine sediments. These soils are on summits of broad ridges and on toeslopes in the uplands. Slopes range from 0 to 5 percent. These soils are fine, mixed, semiactive, thermic Aquic Hapludults.

Gritney soils are geographically associated with Conecuh, Goldsboro, and Luverne soils. Conecuh and Luverne soils are in positions similar to those of the Gritney soils but are at higher elevations. Conecuh soils have smectitic mineralogy. Luverne soils do not have low-chroma redoximorphic depletions in the upper part of the argillic horizon. Goldsboro soils are in lower positions than the Gritney soils and are fine-loamy.

Typical pedon of Gritney loamy fine sand, 0 to 2 percent slopes; about 0.5 mile south of Society Hill; 2,500 feet east and 1,600 feet south of the northwest corner of sec. 33, R. 26 E., T. 17 N.

Ap—0 to 5 inches; brown (10YR 5/3) loamy fine sand; weak fine granular structure; very friable; few fine and medium roots; moderately acid; abrupt wavy boundary.

Bt1—5 to 11 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—11 to 30 inches; brown (7.5YR 4/4) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common medium distinct dark reddish brown (5YR 3/3) masses of iron accumulation; common medium distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

Bt3—30 to 50 inches; reddish brown (5YR 4/4) clay; strong coarse angular and subangular blocky structure; firm; common distinct clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; common medium distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

BC—50 to 65 inches; 40 percent light brownish gray (10YR 6/2), 30 percent strong brown (7.5YR 4/6), and 30 percent red (2.5YR 4/6) clay loam; weak coarse angular blocky structure; firm; few faint clay films on faces of peds; areas of strong brown and red are masses of iron accumulation; areas of light brownish gray are iron depletions; very strongly acid; gradual wavy boundary.

C—65 to 80 inches; 25 percent gray (10YR 6/2), 25 percent yellowish brown (10YR 5/6), 25 percent brown (7.5YR 4/4), and 25 percent dusky red (2.5YR 3/2) sandy clay loam; massive; firm; few thin strata of loamy fine sand and loamy sand; areas of yellowish brown, brown, and dusky red are masses of iron accumulation; areas of gray are iron depletions; very strongly acid.

The thickness of the solum ranges from 35 to more than 60 inches. Reaction ranges from extremely 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 3 to 5, and chroma of 2 to 4. It is fine sandy loam or loamy fine sand.

The E horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4. It is loamy fine sand, fine sandy loam, or sandy 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. The lower part of the Bt horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of gray, brown, red, and yellow. The quantity of redoximorphic accumulations in shades of red or brown ranges from none to common in the upper part and is common or many in the lower part. The quantity of redoximorphic depletions in shades of gray or brown ranges from none to common in the upper part and is common or many in the lower part. The texture is clay, clay loam, or sandy clay.

The BC horizon, where present, has colors and textures similar to those in the lower part of the Bt horizon.

The C horizon is multicolored in shades of gray, brown, and red. It is loam, sandy clay loam, or clay loam. In most pedons, it has thin strata of loamy sand, sandy loam, or sandy clay.

Hannon Series

The Hannon series consists of very deep, moderately well drained soils that formed in clayey sediments overlying stratified loamy and clayey materials, chalk, and marl (fig. 15). These soils are on summits and side slopes of broad ridges in the uplands of the Blackland Prairie. Slopes range from 1 to 25 percent. These soils are fine, smectitic, thermic Chromic Hapluderts.

Hannon soils are geographically associated with Faunsdale, Maytag, Oktibbeha, Sumter, and Vaiden soils. The somewhat poorly drained Faunsdale soils are in lower positions than the Hannon soils. Maytag, Oktibbeha, and Sumter soils are in positions similar to those of the Hannon soils. Maytag and Sumter soils are alkaline throughout the profile and do not have reddish colors in the subsoil. Oktibbeha soils are very-fine textured and do not have carbonates within a depth of 30 inches. The somewhat poorly drained Vaiden soils are on the smoother positions at lower elevations and have brownish and grayish colors in the upper part of the subsoil.

Typical pedon of Hannon clay loam, in an area of Maytag-Hannon complex, 1 to 3 percent slopes; about 0.5 mile west of Hannon; 1,400 feet south and 600 feet west of the northeast corner of sec. 33, T. 15 N., R. 25 E.

Ap—0 to 7 inches; dark brown (10YR 3/3) clay loam; moderate medium subangular blocky structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bt—7 to 16 inches; yellowish red (5YR 4/6) clay; weak coarse prismatic structure parting to strong fine and medium angular blocky; firm; many fine roots; many pressure faces; common dark brown (10YR 3/3) wormcasts; common very fine flakes of mica; few medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; moderately acid; clear wavy boundary.

Bss1—16 to 21 inches; light olive brown (2.5Y 5/6) clay; moderate coarse angular blocky structure parting to strong fine and medium angular blocky; firm; common fine roots; common large intersecting slickensides that have prominent polished and grooved surfaces; many pressure faces; common very fine flakes of mica; few medium distinct yellowish red (5YR 4/6) masses of iron accumulation within the matrix; few medium distinct light brownish gray (10YR 6/2) iron depletions on faces of slickensides and peds; moderately acid; clear wavy boundary.

Bss2—21 to 26 inches; light olive brown (2.5Y 5/4) clay; moderate coarse angular blocky structure parting to strong medium angular blocky; firm; common fine roots that are flattened on faces of peds; common large intersecting slickensides that have prominent polished and grooved faces; many pressure faces; common very fine flakes of mica; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation within the matrix; few medium distinct light brownish gray (2.5Y 6/2) iron depletions on faces of slickensides and peds; neutral; clear wavy boundary.

Bkss1—26 to 40 inches; silty clay, light olive brown (2.5Y 5/4) interior and grayish brown (2.5Y 5/2) exterior; moderate coarse angular blocky structure parting to strong medium angular blocky; firm; few fine roots that are flattened on faces of peds; common large intersecting slickensides that have prominent polished and grooved faces; many fine and medium rounded soft masses of calcium carbonate; common fine flakes of mica; grayish brown colors on faces of slickensides and peds are iron depletions; strongly effervescent; moderately alkaline; clear wavy boundary.

Bkss2—40 to 59 inches; clay, light olive brown (2.5Y 5/6) interior and light olive gray (5Y 6/2) exterior; moderate coarse angular blocky structure parting to strong medium angular blocky; firm; common

large intersecting slickensides that have prominent polished and grooved faces; many fine and medium rounded soft masses of calcium carbonate; common fine flakes of mica; few fine soft black masses and coatings of iron and manganese oxides; common medium distinct olive yellow (2.5Y 6/6) masses of iron accumulation on faces of peds; the light olive gray areas on faces of peds and on slickensides are iron depletions; strongly effervescent; moderately alkaline; clear wavy boundary.

BC—59 to 76 inches; 40 percent pale olive (5Y 6/3), 35 percent light olive brown (2.5Y 5/6), and 25 percent light olive gray (5Y 6/2) clay loam; moderate medium platy rock structure parting to moderate medium and coarse angular blocky; firm; many fine and medium soft masses of calcium carbonate; many very fine flakes of mica; few fine soft black masses and coatings of iron and manganese oxides; the light olive gray areas are iron depletions; violently effervescent; moderately alkaline; clear wavy boundary.

C—76 to 80 inches; thinly stratified light olive gray (5Y 6/2) sandy clay, olive (5Y 5/6) sandy loam, and olive (5Y 5/4) sandy clay loam; weak medium platy rock structure; firm; many fine and medium soft masses of calcium carbonate; many very fine flakes of mica; violently effervescent; moderately alkaline.

The depth to an alkaline horizon ranges from 12 to 30 inches.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. It is clay loam or silty clay loam. Reaction ranges from strongly acid to neutral.

The Bt horizon, or Btss horizon where present, has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of red and brown and redoximorphic depletions in shades of gray ranges from none to common. The texture is clay or silty clay. Reaction ranges from strongly acid to neutral.

The Bss horizon, where present, has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of red and brown and redoximorphic depletions in shades of gray ranges from none to common. The texture is clay or silty clay. Reaction ranges from moderately acid to slightly alkaline.

The Bkss horizon has hue of 2.5Y or 5Y and value of 5 or 6. The chroma ranges from 4 to 6 in ped interiors and from 2 to 4 on exterior faces of peds. The Bkss horizon has common or many soft masses of calcium carbonate and few or common concretions of calcium carbonate. It has few to many redoximorphic accumulations in shades of brown and red and redoximorphic depletions in shades of gray. It is clay, silty clay, or silty clay loam. It is slightly alkaline or moderately alkaline.

The BC horizon, where present, has the same range in color as the Bkss horizon, or it has no dominant matrix color and is multicolored in shades of olive, gray, and brown. It has common or many soft masses and/or concretions of calcium carbonate. It is loam, clay loam, sandy clay loam, or silty clay loam.

The C horizon is commonly stratified. It has hue of 2.5Y or 5Y, value of 5 to 7, and chroma of 2 to 6. The texture ranges from sandy loam to clay. The C horizon is massive or has platy rock structure. It has common or many soft masses of calcium carbonate. In some pedons, it has thin strata of chalk, marl, or fossil oyster shell. Reaction is slightly alkaline or moderately alkaline.

Kinston Series

The Kinston series consists of very deep, poorly drained soils that formed in stratified loamy alluvium. These soils are in flat or concave positions on flood plains. They are subject to flooding for brief periods one or more times in most years, usually in late winter or early spring. Slopes are 0 to 1 percent. These soils are fine-loamy, siliceous, semiactive, acid, thermic Fluvaquentic Endoaquepts.

Kinston soils are geographically associated with Fluvaquents, Eunola soils, and Mooreville soils. The very poorly drained Fluvaquents are in depressions on flood plains and are ponded for long or very long periods. The moderately well drained Eunola soils are on low terraces adjacent to areas of the Kinston soils. The moderately well drained Mooreville soils are in the slightly higher, more convex positions on the flood plains.

Typical pedon of Kinston fine sandy loam, in an area of Kinston-Mooreville complex, 0 to 1 percent slopes, frequently flooded; about 2.2 miles northwest of Cross Keys; 1,200 feet west and 2,300 feet south of the northeast corner of sec. 23, T. 15 N., R. 21 E.

A—0 to 2 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots and few coarse roots; common fine distinct brown (10YR 4/3) masses of iron accumulation; strongly acid; clear wavy boundary.

Ag—2 to 7 inches; gray (10YR 5/1) fine sandy loam; weak fine subangular blocky structure; very friable; many fine and medium roots and few coarse roots;

common fine distinct brown (10YR 4/3) masses of iron accumulation; strongly acid; clear wavy boundary.

Bg1—7 to 23 inches; gray (10YR 5/1) sandy clay loam; weak medium subangular blocky structure; friable; many fine and medium roots and few coarse roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Bg2—23 to 36 inches; light gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; common medium distinct light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bg3—36 to 43 inches; light brownish gray (10YR 6/2) sandy clay loam; weak coarse subangular blocky structure; firm; common fine roots and few medium and coarse roots; 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.

Bg4—43 to 58 inches; light brownish gray (10YR 6/2) sandy clay loam; weak coarse subangular blocky structure; firm; few fine roots; common medium distinct yellowish brown (10YR 5/6), few medium distinct strong brown (7.5YR 5/6), and few fine and medium prominent yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Cg—58 to 80 inches; light gray (2.5Y 7/2) loamy fine sand; single grained; loose; common thin strata of white (10YR 8/2) sand; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation; very strongly acid.

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

The A and Ag horizons have hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

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 redoximorphic accumulations in shades of brown, yellow, and red. The texture is sandy loam, loam, sandy clay loam, or clay loam. Most pedons have strata of sand, loamy sand, or gravelly sand below a depth of 40 inches.

The Cg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It has few or common redoximorphic accumulations in shades of brown, yellow, and red. It is commonly stratified. It is loamy sand, loamy fine sand, sandy loam, clay loam, sandy clay loam, or the gravelly analogs of those textures.

Lucy Series

The Lucy series consists of very deep, well drained soils that formed in sandy and loamy sediments (fig. 16). These soils are on summits of narrow ridges and on hillslopes in the uplands. Slopes range from 1 to 15 percent. These soils are loamy, kaolinitic, thermic Arenic Kandiudults.

Lucy soils are geographically associated with Alaga, Blanton, Luverne, Springhill, and Troup soils. Alaga, Blanton, and Troup soils are in positions similar to those of the Lucy soils. Alaga soils do not have a loamy argillic horizon. Blanton and Troup soils have a sandy epipedon that is more than 40 inches thick. Luverne and Springhill soils are commonly in slightly lower positions than those of the Lucy soils and do not have a thick, sandy epipedon.

Typical pedon of Lucy loamy fine sand, in an area of Lucy-Luverne-Springhill complex, 1 to 5 percent slopes; about 2.7 miles west of Anacil Chapel; 2,000 feet west and 800 feet south of the northeast corner of sec. 24, T. 15 N., R. 25 E.

Ap—0 to 5 inches; brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.

E1—5 to 16 inches; yellowish brown (10YR 5/6) loamy fine sand; weak coarse subangular blocky structure; very friable; common fine and medium roots; common streaks and pockets of uncoated sand; few fine fragments of charcoal; strongly acid; abrupt smooth boundary.

E2—16 to 25 inches; brownish yellow (10YR 6/6) loamy fine sand; weak coarse subangular blocky structure; very friable; few fine and medium roots; common streaks of uncoated sand; strongly acid; clear wavy boundary.

E3—25 to 39 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak coarse subangular blocky structure; very friable; few fine roots; common streaks of uncoated sand; strongly acid; abrupt wavy boundary.

Bt1—39 to 49 inches; red (2.5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few medium distinct brownish yellow (10YR 6/6) masses of iron accumulation that are relict redoximorphic features; strongly acid; gradual wavy boundary.

Bt2—49 to 72 inches; red (2.5YR 4/8) sandy clay loam; weak coarse subangular blocky structure; firm; few distinct clay films on faces of peds; common medium distinct strong brown

(7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; strongly acid.

The solum is more than 60 inches thick. The thickness of the sandy epipedon ranges from 20 to 40 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied.

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

The E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 6. It is loamy sand 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. The quantity of redoximorphic accumulations in shades of red, yellow, and brown ranges from none to common. The accumulations are relict features. The texture is sandy loam, fine sandy loam, or sandy clay loam in the upper part and sandy clay loam or clay loam in the lower part.

Luverne Series

The Luverne series consists of very deep, well drained soils that formed in stratified clayey and loamy sediments. These soils are on summits and side slopes of narrow ridges in the uplands. Slopes range from 1 to 35 percent. These soils are fine, mixed, semiactive, thermic Typic Hapludults.

Luverne soils are geographically associated with Blanton, Conecuh, Gritney, Lucy, Springhill, and Troup soils. Blanton, Lucy, and Troup soils are commonly in higher positions than the Luverne soils and have a thick, sandy epipedon. Gritney and Conecuh soils are in lower positions than the Luverne soils. Gritney soils have brownish colors and low-chroma redoximorphic depletions in the upper part of the argillic horizon. Conecuh soils have smectitic mineralogy. Springhill soils are in positions similar to those of the Luverne soils and are fine-loamy.

Typical pedon of Luverne sandy loam, 1 to 5 percent slopes; about 1 mile northwest of Cotton Valley; 1,000 feet east and 1,500 feet south of the northwest corner of sec. 12, T. 15 N., R. 23 E.

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

Bt1—4 to 16 inches; yellowish red (5YR 4/6) sandy clay; weak medium subangular blocky structure; firm; few fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; very strongly acid; clear wavy boundary.

Bt2—16 to 32 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; few medium distinct light yellowish brown (10YR 6/4) iron depletions that are relict redoximorphic features; very strongly acid; clear wavy boundary.

BC—32 to 45 inches; red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; firm; few fine roots; few faint clay films on faces of some peds; common fine flakes of mica; common medium distinct reddish yellow (7.5YR 6/6) masses of iron accumulation that are relict redoximorphic features; few fine distinct pale brown (10YR 6/3) iron depletions that are relict redoximorphic features; very strongly acid; gradual wavy boundary.

C—45 to 72 inches; thinly stratified red (2.5YR 4/6), reddish yellow (7.5YR 6/6), and pale brown (10YR 6/3) fine sandy loam; massive; few thin strata of sandy clay loam; many fine flakes of mica; areas of red and reddish yellow are masses of iron accumulation; areas of pale brown are iron depletions; very strongly acid.

The thickness of the solum ranges from 20 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 3 to 5, and chroma of 2 to 4. It is loamy sand, loamy fine sand, or sandy loam.

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is loamy sand, loamy fine sand, or sandy loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of red, brown, and yellow ranges from none to common. The texture is clay loam, sandy clay, or clay.

The BC horizon, where present, has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8; or it has no dominant matrix color and is multicolored in shades of red, brown, and yellow. It has few to many redoximorphic accumulations in shades of red, yellow, or brown and redoximorphic depletions in shades of brown and gray. The redoximorphic features are relict. The texture is sandy clay loam or clay loam.

The C horizon consists of stratified sediments that have a high content of mica. The texture of individual strata ranges from loamy sand to clay. Color varies,

but the sandier-textured strata commonly have hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. Clayey strata are generally grayish. In some pedons, the C horizon has thin strata of clayey shale or ironstone.

Lynchburg Series

The Lynchburg series consists of very deep, somewhat poorly drained soils that formed in loamy sediments. These soils are on low terraces. They are subject to rare flooding during periods of unusually high and prolonged rainfall. Slopes range from 0 to 2 percent. These soils are fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults.

Lynchburg soils are geographically associated with Dogue, Goldsboro, Ocilla, and Pelham soils. Dogue and Goldsboro soils are in slightly higher positions than the Lynchburg soils. Dogue soils have a clayey argillic horizon. Goldsboro soils are moderately well drained. Ocilla soils are in positions similar to those of the Lynchburg soils and have a thick, sandy epipedon. The poorly drained Pelham soils are in slightly lower positions than the Lynchburg soils and have a thick, sandy epipedon.

Typical pedon of Lynchburg fine sandy loam, 0 to 2 percent slopes, rarely flooded; about 2.0 miles west of Shorter; 2,250 feet west and 2,200 feet north of the southeast corner of sec. 4, T. 16 N., R. 21 E.

Ap—0 to 10 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

E—10 to 15 inches; light yellowish brown (2.5Y 6/3) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and medium roots; common fine distinct yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt—15 to 29 inches; light olive brown (2.5Y 5/4) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; few fine and medium roots; common faint clay films on faces of peds; thin coatings of clay depletions consisting of light brownish gray (2.5Y 6/2) very fine sand and silt on faces of prisms; common medium distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) masses of iron accumulation; many medium distinct light brownish gray (2.5Y 6/2) iron depletions; very strongly acid; clear wavy boundary.

Btg1—29 to 35 inches; light brownish gray (2.5Y 6/2) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common faint clay films on faces of peds; thin coatings of clay depletions consisting of gray (2.5Y 6/1) very fine sand and silt on faces of prisms; common fine and medium distinct dark yellowish brown (10YR 4/4) and brownish yellow (10YR 6/6) and many medium and coarse prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg2—35 to 61 inches; light brownish gray (2.5Y 6/2) sandy clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; thin coatings of clay depletions consisting of gray (2.5Y 6/1) very fine sand and silt on faces of peds; common fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) and many medium and coarse prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg3—61 to 80 inches; gray (2.5Y 6/1) sandy clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; thin coatings of clay depletions consisting of gray (2.5Y 6/1) very fine sand and silt on faces of peds; common medium distinct brownish yellow (10YR 6/8) and strong brown (7.5YR 5/8) and few fine prominent red (2.5YR 4/6) masses of iron accumulation; very strongly acid.

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

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2.

The E horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4. It is fine sandy loam, loamy fine sand, or sandy loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6. It has common or many redoximorphic accumulations in shades of red, brown, and yellow and common or many redoximorphic depletions in shades of gray. It is sandy clay loam, clay loam, or sandy loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of brown, yellow, and red. It is clay loam, sandy clay loam, or sandy clay.

Malbis Series

The Malbis series consists of very deep, well drained soils that formed in loamy sediments. These soils are on summits of ridges in the uplands. Slopes range from 0 to 2 percent. These soils are fine-loamy, siliceous, subactive, thermic Plinthic Paleudults.

Malbis soils are geographically associated with Bama and Luverne soils. Bama soils are in positions similar to those of the Malbis soils and have a reddish argillic horizon. Luverne soils are on side slopes at lower elevations and have a clayey argillic horizon.

Typical pedon of Malbis fine sandy loam, 0 to 2 percent slopes; in Shorter, about 0.38 mile southwest of the old school building; 1,100 feet south and 2,600 feet east of the northwest corner of sec. 11, T. 16 N., R. 21 E.

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

E—8 to 13 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; clear smooth boundary.

BE—13 to 19 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine and medium roots; few fine and medium rounded ironstone concretions; moderately acid; clear wavy boundary.

Bt—19 to 35 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common faint clay films on faces of peds; common fine and medium rounded ironstone concretions; strongly acid; clear wavy boundary.

Btv1—35 to 49 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common faint clay films on faces of peds; about 8 percent nodular plinthite; few medium rounded ironstone concretions; few medium prominent yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Btv2—49 to 64 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine and medium roots; common faint clay films on faces of peds; about 10 percent nodular plinthite; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btv3—64 to 80 inches; strong brown (7.5YR 5/6) sandy clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm, brittle; few fine roots; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; about 10 percent nodular plinthite; few thin light gray (10YR 7/1) clay depletions on prism faces; very strongly acid.

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

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

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It is sandy loam or fine sandy loam.

The BE horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. It is fine sandy loam or loam.

The Bt horizon commonly has hue of 10YR, value of 4 to 6, and chroma of 4 to 8. In some pedons, however, it has hue of 7.5YR, value of 4 or 5, and chroma of 4 to 8. The texture is commonly sandy clay loam, but the range in texture includes loam and clay loam.

The upper part of the Btv horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of brown, yellow, or red ranges from few to many, and the quantity of redoximorphic depletions in shades of brown or gray is none or few. The lower part of the Btv horizon has colors that are similar to the upper part, or it has no dominant matrix color and is multicolored in shades of brown, red, yellow, and gray. The texture of the Btv horizon commonly is sandy clay loam or clay loam. In some pedons, however, it is clay below a depth of 50 inches. The content of nodular plinthite in the Btv horizon ranges from 5 to 15 percent.

Marvyn Series

The Marvyn series consists of very deep, well drained soils that formed in loamy sediments (fig. 17). These soils are on summits and side slopes of ridges in the uplands. Slopes range from 0 to 5 percent. These soils are fine-loamy, kaolinitic, thermic Typic Kanhapludults.

Marvyn soils are geographically associated with Cowarts, Orangeburg, Uchee, and Wagram soils. Cowarts soils are on side slopes adjacent to areas of the Marvyn soils and have a solum that is less than 40 inches thick. Orangeburg, Uchee, and Wagram soils are in positions similar to those of the Marvyn soils.

Figure 13.—A profile of Altavista silt loam. These moderately well drained soils are on low stream terraces and formed in loamy, fluvial sediments derived from the Piedmont uplands.

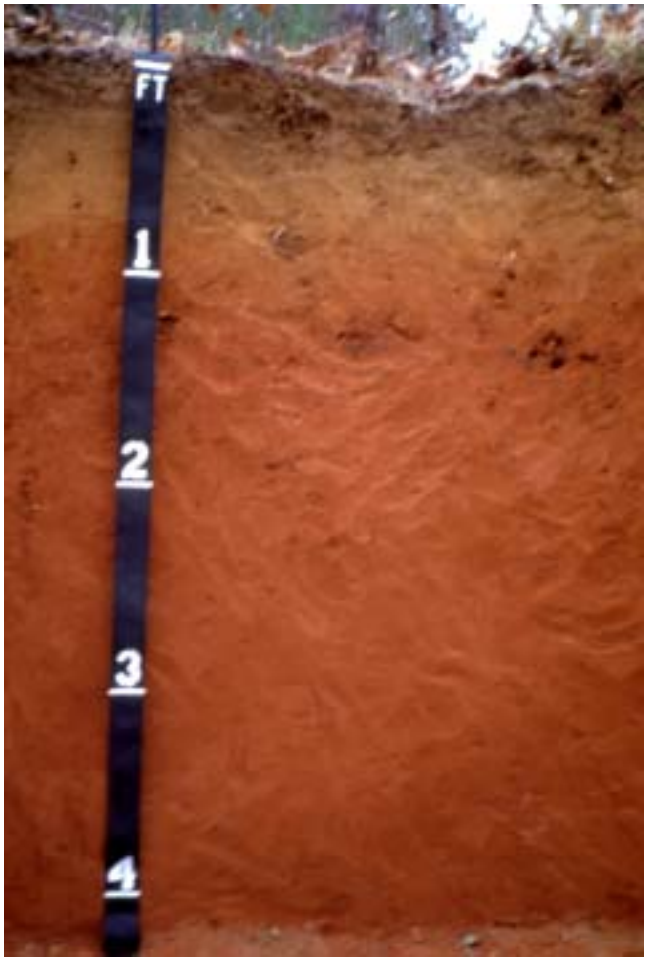

Figure 14.—A profile of Bama fine sandy loam. These well drained soils are on summits of ridges or high stream terraces and formed in loamy sediments.

Figure 15.—A profile of Hannon clay. These clayey soils are on uplands of the Blackland Prairie. Alkaline materials commonly occur within a depth of 12 to 30 inches.

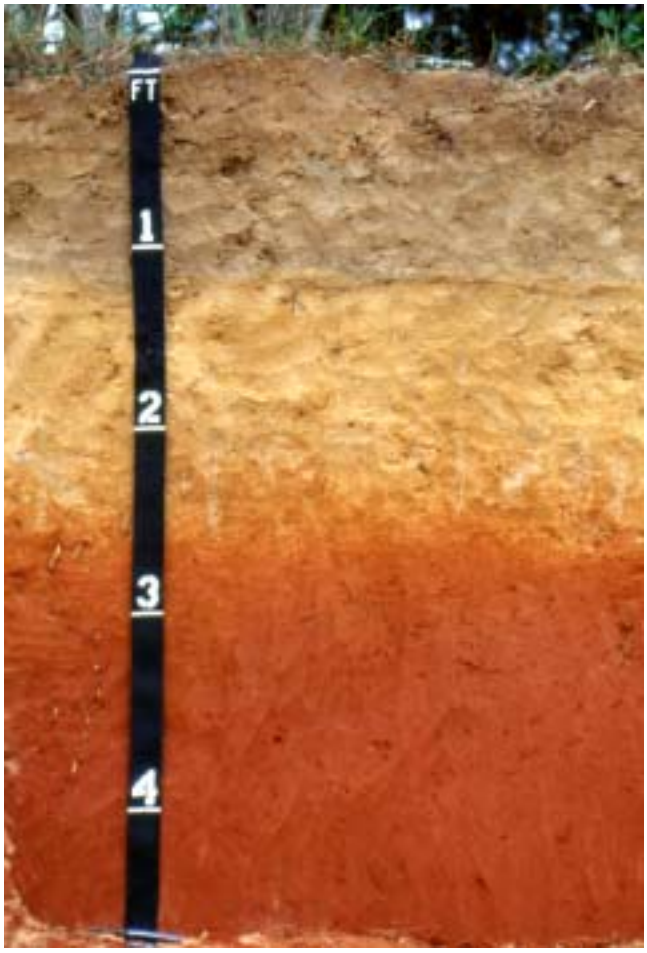

Figure 16.—A profile of Lucy loamy fine sand. These well drained soils are on summits and side slopes in the uplands. A reddish, sandy clay loam kandic horizon is at a depth of about 30 inches.

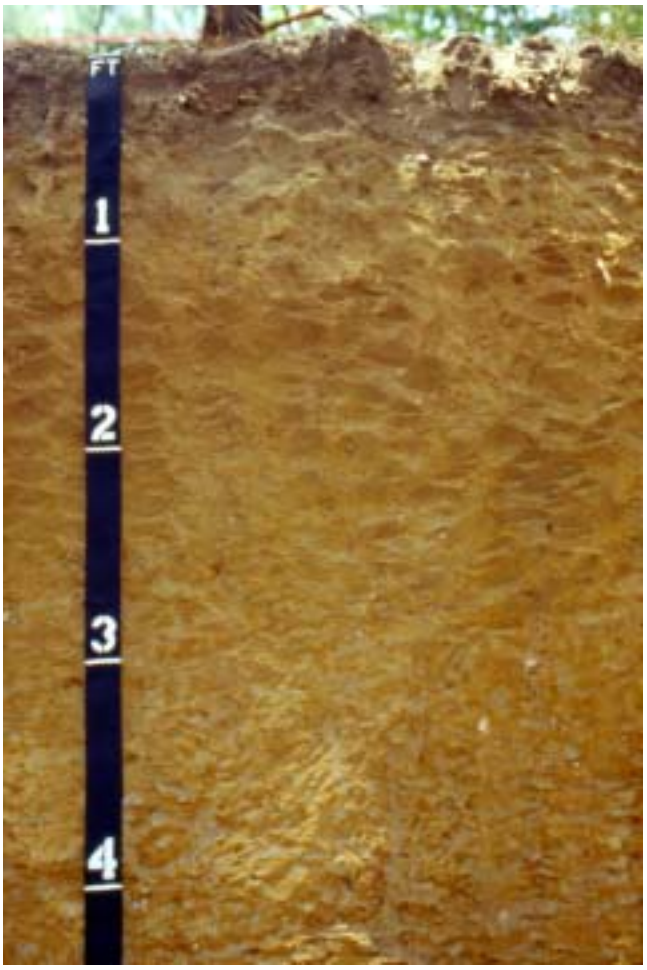

Figure 17.— A profile of Marvyn sandy loam. These well drained soils are on summits of ridges and formed in loamy, fluviomarine sediments.

Figure 18.—A profile of Toccoa fine sandy loam. These well drained soils are on high parts of natural levees adjacent to the Tallapoosa River. They formed in stratified loamy and sandy fluvial sediments.

Orangeburg soils have a thick, reddish kandic horizon. Uchee and Wagram soils have a thick, sandy epipedon.

Typical pedon of Marvyn sandy loam, 0 to 2 percent slopes; about 1.0 mile northeast of Little Texas; 1,500 feet west and 200 feet north of the southeast corner of sec. 16, T. 17 N., R. 25 E.

Ap—0 to 7 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common fine roots; about 3 percent rounded quartzite pebbles; slightly acid; abrupt wavy boundary.

Bt1—7 to 26 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; about 5 percent rounded quartzite pebbles; strongly acid; clear smooth boundary.

Bt2—26 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; about 5 percent rounded quartzite pebbles; few fine flakes of mica; few medium prominent yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear smooth boundary.

Bt3—36 to 47 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure parting to weak medium subangular blocky; friable; few faint clay films on faces of some peds; about 5 percent rounded quartzite pebbles; common fine flakes of mica; about 3 percent nodular plinthite; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear smooth boundary.

C—47 to 65 inches; thinly stratified yellowish brown (10YR 5/6) sandy loam, strong brown (7.5YR 5/6) sandy loam, and light gray (10YR 7/2) sandy clay loam; massive; friable; about 5 percent rounded quartzite pebbles; many fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to 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 content of rounded quartzite pebbles ranges from 0 to 10 percent throughout the profile.

The Ap or A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. It is loamy sand or sandy loam.

The BA horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 3 to 8. It is sandy loam or sandy clay loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. It is commonly sandy clay loam. In some pedons, however, it has thin subhorizons of sandy loam. The content of nodular plinthite ranges from 0 to 4 percent.

The BC horizon, where present, has the same range in color as the Bt horizon, or it has no dominant matrix color and is multicolored in shades of yellow, brown, red, and gray. It is sandy loam or sandy clay loam.

The C horizon is commonly stratified. It commonly has no dominant matrix color and is multicolored in shades of red, yellow, brown, and gray. It is dominantly sandy loam or sandy clay loam. Most pedons, however, have strata or pockets of finer- and coarser-textured materials. In some pedons, the C horizon has thin strata of gravel.

Maytag Series

The Maytag series consists of very deep, moderately well drained soils that formed in alkaline, clayey sediments underlain by chalk or marl. These soils are on summits and side slopes of broad ridges on uplands in the Blackland Prairie. Slopes range from 0 to 8 percent. These soils are fine, smectitic, thermic Oxyaquic Hapluderts.

Maytag soils are geographically associated with Faunsdale, Hannon, Oktibbeha, Sucarnoochee, and Vaiden soils. The somewhat poorly drained Faunsdale soils are in slightly lower positions than the Maytag soils. Hannon and Oktibbeha soils are in positions similar to those of the Maytag soils. In the upper part of the subsoil, the Hannon and Oktibbeha soils have reddish colors and are acid. The somewhat poorly drained Sucarnoochee soils are on flood plains. The somewhat poorly drained Vaiden soils are generally in lower positions than those of the Maytag soils and are acid in the upper part of the subsoil.

Typical pedon of Maytag silty clay, 0 to 2 percent slopes; about 2.25 miles south-southwest of Hardaway; 300 feet east and 1,900 feet south of the northwest corner of sec. 28, T. 15 N., R. 22 E.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay; weak coarse subangular blocky structure parting to weak medium granular; firm; many fine and very fine roots; many dark gray wormcasts; slightly alkaline; gradual wavy boundary.

Bkss1—5 to 20 inches; 60 percent olive (5Y 5/3) and 40 percent olive (5Y 5/6) clay; strong coarse subangular blocky structure parting to moderate fine and medium angular blocky; firm; few fine

roots; common dark gray wormcasts; few large intersecting slickensides that have distinct polished and grooved surfaces; common fine concretions and soft masses of calcium carbonate; few fine faint olive (5Y 5/3) iron depletions on faces of peds; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss2—20 to 36 inches; olive (5Y 4/3) clay; weak coarse subangular blocky structure parting to strong medium angular blocky; firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; common large wedge-shaped aggregates; common fine concretions and soft masses of calcium carbonate; few fine faint olive (5Y 4/4) masses of iron accumulation; few fine faint olive (5Y 5/3) iron depletions on faces of peds; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss3—36 to 48 inches; pale olive (5Y 6/3) clay; weak coarse angular blocky structure parting to strong medium angular blocky; firm; few fine roots that are flattened on faces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; common large wedge-shaped aggregates; many fine and medium concretions and soft masses of calcium carbonate; common medium distinct olive (5Y 5/6) masses of iron accumulation; common fine distinct gray (5Y 5/1) iron depletions on faces of peds; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss4—48 to 65 inches; 30 percent pale olive (5Y 6/4), 25 percent light gray (5Y 7/2), 25 percent olive yellow (5Y 6/6), and 20 percent strong brown (7.5YR 5/8) clay; weak coarse angular blocky structure parting to strong medium angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common large wedge-shaped aggregates; common fine and medium concretions and soft masses of calcium carbonate; strongly effervescent; moderately alkaline.

The thickness of the solum ranges from 45 to more than 60 inches. Depth to chalk bedrock is more than 60 inches. Reaction is slightly alkaline or moderately alkaline throughout the profile. The quantity of soft masses and concretions of calcium carbonate is few or common throughout the profile.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. It is clay loam, silty clay loam, or silty clay.

The BA horizon, where present, has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 or 4. It is silty clay, clay, or silty clay loam.

The upper part of the Bkss horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 to 6. It has few or common redoximorphic accumulations in shades of brown, yellow, and olive and few or common redoximorphic depletions in shades of gray. The lower part of the horizon has the same range in color as the upper part, or it has no dominant matrix color and is multicolored in shades of brown, gray, olive, and yellow. The Bkss horizon is silty clay loam, silty clay, or clay.

The C horizon, where present, has hue of 2.5Y or 5Y, value of 6 or 7, and chroma of 2 to 4. It has few or common redoximorphic depletions in shades of gray and redoximorphic accumulations in shades of yellow and brown. It is silty clay loam, silty clay, or clay.

Mooreville Series

The Mooreville series consists of very deep, moderately well drained soils that formed in loamy alluvium. These soils are on high and intermediate parts of natural levees on flood plains along major streams. In most years, they are subject to flooding for brief periods, usually in late winter or in spring. Slopes are 0 to 1 percent. These soils are fine-loamy, siliceous, active, thermic Fluvaquentic Dystrudepts.

Mooreville soils are geographically associated with Kinston, Una, and Urbo soils. The poorly drained Kinston and Una soils and the somewhat poorly drained Urbo soils are in the lower positions on flood plains. Kinston soils are grayish throughout. Una and Urbo soils are clayey throughout.

Typical pedon of Mooreville loam, in an area of Urbo-Una-Mooreville complex, 0 to 1 percent slopes, frequently flooded; about 4.0 miles northwest of Warriorstand; 600 feet north and 250 feet west of the southeast corner of sec. 18, T. 16 N., R. 25 E.

A—0 to 4 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bw1—4 to 19 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; friable; common fine and medium roots and few coarse roots; few fine distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bw2—19 to 29 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots and few coarse roots; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; few fine distinct light brownish gray

(10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bw3—29 to 55 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common medium distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; gradual wavy boundary.

Cg—55 to 88 inches; gray (2.5Y 6/1) sandy clay loam; massive; firm; few thin black coatings of iron and manganese oxides on ped faces; common medium distinct strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/6) 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.

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

The upper part of the Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. The quantity of redoximorphic accumulations in shades of brown and yellow and redoximorphic depletions in shades of gray ranges from none to common. The lower part of the horizon has hue of 10YR, value of 4 to 6, and chroma of 3 to 6; or it has no dominant matrix color and is multicolored in shades of brown and gray. It has few to many redoximorphic depletions in shades of gray. The Bw horizon is loam, sandy clay loam, or clay loam.

The Cg horizon commonly has a grayish matrix and few to many redoximorphic accumulations in shades of brown, yellow, and red; or it has no dominant matrix color and is multicolored in shades of gray, brown, and yellow. It is sandy loam, loam, sandy clay loam, or clay loam.

Myatt Series

The Myatt series consists of very deep, poorly drained soils that formed in loamy fluvial sediments. These soils are in low positions on stream terraces. They are subject to brief, rare flooding during periods of unusually high rainfall. Slopes are 0 to 1 percent. These soils are fine-loamy, siliceous, active, thermic Typic Endoaquults.

Myatt soils are geographically associated with Bethera, Cahaba, Dogue, and Eunola soils. Bethera soils are in lower positions than the Myatt soils and have a clayey argillic horizon. Cahaba, Dogue, and Eunola soils are in slightly higher, more convex positions than those of the Myatt soils. Cahaba soils have a reddish argillic horizon. Dogue soils have a clayey argillic horizon. Eunola soils have a brownish argillic horizon.

Typical pedon of Myatt loam, 0 to 1 percent slopes, rarely flooded; about 2.3 miles east-southeast of Franklin; 2,400 feet east and 200 feet south of the northwest corner of sec. 9, T. 17 N., R. 23 E.

Ap—0 to 6 inches; dark gray (10YR 4/1) loam; weak medium granular structure; very friable; many fine and very fine roots; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation along root channels; common coarse distinct light brownish gray (2.5Y 6/2) iron depletions; very strongly acid; abrupt wavy boundary.

Btg1—6 to 12 inches; grayish brown (2.5Y 5/2) sandy clay loam; weak coarse subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; few fine flakes of mica; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation along root channels; common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation within the matrix; very strongly acid; clear wavy boundary.

Btg2—12 to 18 inches; gray (10YR 5/1) clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine and medium roots; common distinct clay films on faces of peds; few fine flakes of mica; many medium prominent brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

Btg3—18 to 30 inches; gray (10YR 5/1) clay loam; strong coarse prismatic structure parting to strong medium subangular blocky; firm; few fine and very fine roots; common distinct clay films on faces of peds; few fine flakes of mica; many coarse and medium prominent brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

Btg4—30 to 50 inches; gray (10YR 5/1) clay; moderate coarse prismatic structure; firm; few fine and very fine roots; common distinct clay films on faces of peds; few fine flakes of mica; common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Btg5—50 to 55 inches; gray (10YR 5/1) clay loam; weak coarse prismatic structure; firm; few faint clay films on faces of peds; few fine flakes of mica; common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

BC—55 to 65 inches; gray (10YR 6/1) loam; weak coarse subangular blocky structure; friable; many fine flakes of mica; common fine and medium

prominent brownish yellow (10YR 6/8) masses of iron accumulation; very strongly acid.

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

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many redoximorphic accumulations in shades of brown, red, or yellow. It commonly is sandy clay loam, clay loam, or loam but includes subhorizons of clay in some pedons.

The BC horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of red, yellow, or brown. It is sandy clay loam, clay loam, or loam.

The Cg horizon, where present, has the same range in color as the BC horizon, or it does not have a dominant matrix color and is multicolored in shades of gray, brown, and red. It has common or many masses of iron accumulation in shades of brown, red, or yellow. It is sandy loam, sandy clay loam, clay loam, or gravelly sandy loam.

Ocilla Series

The Ocilla series consists of very deep, somewhat poorly drained soils that formed in sandy and loamy sediments. These soils are on low stream terraces. They are subject to brief, rare flooding during periods of unusually high rainfall. Slopes range from 0 to 2 percent. These soils are loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults.

Ocilla soils are geographically associated with Goldsboro, Lynchburg, and Pelham soils. Goldsboro soils are in slightly higher positions than the Ocilla soils and do not have a thick, sandy epipedon. Lynchburg soils are in landscape positions similar to those of the Ocilla soils and do not have a thick, sandy epipedon. The poorly drained Pelham soils are in slightly lower, more concave positions than those of the Ocilla soils.

Typical pedon of Ocilla loamy fine sand, 0 to 2 percent slopes, rarely flooded; about 2.9 miles northeast of Hardaway; 1,700 feet west and 2,600 feet south of the northeast corner of sec. 12, T. 15 N., R. 22 E.

Ap—0 to 6 inches; dark grayish brown (2.5Y 4/2) loamy fine sand; weak fine granular structure; very friable; many fine roots; common fine fragments of charcoal; strongly acid; clear smooth boundary.

E—6 to 24 inches; light yellowish brown (2.5Y 6/3) loamy fine sand; weak coarse subangular blocky structure; very friable; many fine roots; common fine fragments of charcoal; common fine faint light yellowish brown (2.5Y 6/4) masses of iron accumulation; strongly acid; clear smooth boundary.

EB—24 to 29 inches; light yellowish brown (2.5Y 6/4) loamy fine sand; weak coarse subangular blocky structure; very friable; many fine roots; common medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.

Bt1—29 to 38 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few fine distinct brownish yellow (10YR 6/8) masses of iron accumulation; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bt2—38 to 48 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; common faint clay films on faces of peds; thin coatings of clay depletions consisting of pale yellow (2.5Y 8/2) very fine sand and silt on vertical faces of prisms; common medium and coarse prominent strong brown (7.5YR 5/6) and yellowish red (5YR 5/8) masses of iron accumulation; many medium distinct gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Btg1—48 to 60 inches; light brownish gray (10YR 6/2) sandy clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; thin coatings of clay depletions consisting of pale yellow (2.5Y 8/2) very fine sand and silt on vertical faces of prisms; common medium and coarse prominent strong brown (7.5YR 5/6), dark yellowish brown (10YR 4/6), and yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btg2—60 to 80 inches; light brownish gray (10YR 6/2) sandy clay; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common faint clay films on faces of peds; thin coatings of clay depletions consisting of pale yellow (2.5Y 8/2) very fine sand and silt on vertical faces of prisms; common coarse prominent strong brown (7.5YR 5/6) and yellowish brown

(10YR 5/6) masses of iron accumulation; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been added.

The A or Ap horizon has hue of 10YR or 2.5Y, 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 2 to 4. It is loamy fine sand or loamy sand.

The EB or BE horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. It is loamy sand, loamy fine sand, or sandy loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8; or it has no dominant matrix color and is multicolored in shades of brown, yellow, red, and gray. It has common or many redoximorphic accumulations in shades of red, yellow, and brown and common or many redoximorphic depletions in shades of gray or brown. It is sandy clay loam or sandy loam.

The Btg horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of red, yellow, and brown. It is sandy clay loam or sandy clay.

Oktibbeha Series

The Oktibbeha series consists of very deep, moderately well drained soils that formed in materials weathered from alkaline clays and the underlying chalk and marl. These soils are on summits and side slopes of broad ridges in the Blackland Prairie. Slopes range from 1 to 15 percent. These soils are very-fine, smectitic, thermic Chromic Dystruderts.

Oktibbeha soils are geographically associated with Hannon, Maytag, Searcy, Sucarnoochee, and Vaiden soils. Hannon and Maytag soils are in positions similar to those of the Oktibbeha soils. Hannon soils are fine textured and have accumulations of calcium carbonate within a depth of 30 inches. Maytag soils have hue of 10YR or yellower throughout the profile and are alkaline below the surface layer. Searcy soils are in positions similar to those of the Oktibbeha soils but are at lower elevations, are fine textured, and do not have vertic properties. The somewhat poorly drained Sucarnoochee soils are on flood plains. The somewhat poorly drained Vaiden soils are in lower positions than those of the Oktibbeha soils and have brownish colors in the subsoil.

Typical pedon of Oktibbeha clay loam, 1 to 5 percent slopes, eroded; about 0.4 mile east of Roba; 1,200 feet east and 700 feet south of the northwest corner of sec. 31., T. 15 N., R. 25 E.

Ap—0 to 4 inches; dark brown (7.5YR 3/4) clay loam; moderate fine subangular blocky structure; firm; many fine and medium roots; strongly acid; abrupt smooth boundary.

Bt—4 to 9 inches; red (2.5YR 4/6) clay; strong medium subangular blocky structure; firm; few fine and medium roots; few faint clay films on faces of peds; many distinct pressure faces; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss1—9 to 14 inches; red (2.5YR 4/6) clay; weak coarse subangular blocky structure parting to moderate medium angular blocky; firm; common fine roots and few medium roots; few faint clay films on faces of peds; common intersecting slickensides that have faintly striated surfaces; many distinct pressure faces; common coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Btss2—14 to 33 inches; red (2.5YR 4/6) clay; moderate coarse angular blocky structure parting to moderate fine and medium angular blocky; firm; common fine roots and few medium roots; few faint clay films on faces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; common medium and coarse distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; few fine distinct light brownish gray (10YR 6/2) iron depletions on faces of peds; strongly acid; clear wavy boundary.

Btss3—33 to 38 inches; brownish yellow (10YR 6/6) clay; weak coarse subangular blocky structure parting to moderate fine and medium angular blocky; firm; few faint clay films on faces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; common coarse and medium distinct red (2.5YR 4/6) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) and very pale brown (10YR 7/3) iron depletions on faces of peds; moderately acid; clear wavy boundary.

Bkss1—38 to 54 inches; light olive brown (2.5Y 5/6) clay; weak coarse subangular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots that are flattened on ped faces; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine and medium rounded concretions and soft masses of calcium carbonate; common medium

distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of iron accumulation; common medium distinct light olive gray (5Y 6/2) iron depletions on faces of peds; strongly effervescent; moderately alkaline; clear wavy boundary.

Bkss2—54 to 65 inches; pale yellow (2.5Y 6/4) silty clay; weak coarse subangular blocky structure parting to strong fine angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; many fine and medium rounded concretions and soft masses of calcium carbonate; common coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; common medium distinct light olive gray (5Y 6/2) and very pale brown (10YR 7/3) iron depletions on faces of peds; strongly effervescent; moderately alkaline.

The depth to an alkaline horizon ranges from 30 to 50 inches. The depth to chalk bedrock is more than 60 inches.

The Ap or A horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4. It is very strongly acid or strongly acid, except in areas where lime has been applied.

The Bt horizon, where present, has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. In some pedons, it has redoximorphic accumulations in shades of brown and red and redoximorphic depletions in shades of gray. It is clay. Reaction is extremely acid or very strongly acid.

The upper part of the Btss horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, gray, and red. The lower part has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6; or it has no dominant matrix color and is multicolored in shades of brown, gray, and red. The Btss horizon has few to many redoximorphic accumulations in shades of brown, yellow, and red and few to many redoximorphic depletions in shades of gray and brown. It is clay. Reaction ranges from very strongly acid to moderately acid.

The Bkss horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8; or it has no dominant matrix color and is multicolored in shades of brown, olive, yellow, red, and gray. It has few to many redoximorphic accumulations in shades of brown and few to many redoximorphic depletions in shades of gray and brown. The redoximorphic features are most common on the surface of peds or slickensides. The Bkss horizon has few to many concretions and soft masses of calcium carbonate. It is silty clay or clay. Reaction ranges from neutral to moderately alkaline.

The 2C horizon, where present, is chalk or calcareous clay. It is massive or has platy rock structure. It is slightly alkaline or moderately alkaline. Some pedons have a 2Cr horizon below a depth of 60 inches. The 2Cr horizon can be dug with difficulty with hand tools and is rippable by heavy machinery.

Orangeburg Series

The Orangeburg series consists of very deep, well drained soils that formed in loamy sediments. These soils are on summits of broad ridges in the uplands. Slopes range from 0 to 2 percent. These soils are fine-loamy, kaolinitic, thermic Typic Kandiudults.

Orangeburg soils are geographically associated with Cowarts, Lucy, Marvyn, Springhill, and Troup soils. Cowarts and Springhill soils are on side slopes adjacent to areas of Orangeburg soils. Cowarts soils have a brownish kandic horizon. Springhill soils have a significant decrease in clay content in the lower part of the kandic horizon. Lucy and Troup are in slightly lower positions than those of the Orangeburg soils and have a thick, sandy epipedon. Marvyn soils are in positions similar to those of the Orangeburg soils but are on less convex slopes and have a brownish kandic horizon.

Typical pedon of Orangeburg sandy loam, 0 to 2 percent slopes; about 1.0 mile southeast of the courthouse in Tuskegee; 900 feet west and 1,000 feet north of the southeast corner of sec. 31, T. 17 N., R. 24 E.

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

Bt1—6 to 17 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots and few medium roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—17 to 35 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—35 to 55 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; gradual wavy boundary.

Bt4—55 to 80 inches; yellowish red (5YR 5/6) sandy

clay loam; weak medium subangular blocky structure; friable; common faint clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid.

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

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

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is fine sandy loam, sandy loam, loamy sand, or loamy fine sand.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is sandy clay loam. In many pedons, it has redoximorphic accumulations in shades of brown and redoximorphic depletions in shades of gray and brown in the lower part. These are relict redoximorphic features.

Pacolet Series

The Pacolet series consists of very deep, well drained soils that formed in materials weathered from acid crystalline rocks, such as granite, gneiss, or schist. These soils are on summits of narrow ridges and on side slopes in the uplands in the northern part of the county. Slopes range from 6 to 25 percent. These soils are fine, kaolinitic, thermic Typic Kanhapludults.

Pacolet soils are geographically associated with Cowarts, Marvyn, Springhill, and Uchee soils. Cowarts, Springhill, and Uchee soils are in positions similar to those of the Pacolet soils but are at higher elevations. Cowarts and Springhill soils are fine-loamy. Uchee soils have a thick, sandy epipedon. Marvyn soils are on summits and side slopes at the higher elevations and are fine-loamy.

Typical pedon of Pacolet sandy loam, 10 to 25 percent slopes; about 0.9 mile southwest of Notasulga; 4,300 feet west and 4,600 feet south of the northeast corner of sec. 14, T. 18 N., R. 24 E.

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

Bt1—4 to 18 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; many fine and medium roots; common distinct clay films on faces of peds; common fine flakes of mica; about 3 percent angular quartzite pebbles; very strongly acid; clear smooth boundary.

Bt2—18 to 28 inches; red (2.5YR 4/6) clay; common medium distinct strong brown (7.5YR 5/6) mottles; strong medium subangular blocky structure; firm; few fine and medium roots; common distinct clay films on faces of peds; common fine flakes of mica; about 3 percent angular quartzite pebbles; very strongly acid; clear wavy boundary.

BC—28 to 36 inches; yellowish red (5YR 5/6) clay loam; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; common fine flakes of mica; about 2 percent angular quartzite pebbles; very strongly acid; clear irregular boundary.

C1—36 to 55 inches; 60 percent yellowish red (5YR 5/6) and 40 percent strong brown (7.5YR 5/6) saprolite that has a texture of sandy clay loam; weak platy rock structure; friable; few thin seams of clay in cracks; many fine flakes of mica; very strongly acid; clear irregular boundary.

C2—55 to 72 inches; soft, multicolored saprolite that has a texture of loam; weak platy rock structure; very friable; many fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to hard bedrock 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 content of gravel ranges from 0 to 15 percent throughout the profile.

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

The BA or BE horizon, where present, has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is sandy loam, loam, or sandy clay loam.

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

The BC horizon, where present, has hue of 10R to 5YR, value of 4 or 5, and chroma of 6 to 8. The content of rock fragments ranges from 0 to 15 percent. The texture is sandy loam, sandy clay loam, or clay loam.

The C horizon has hue of 10R to 5YR, value of 4 or 5, and chroma of 6 to 8 and commonly is multicolored. It is soft saprolite that weathered from acid crystalline rock, such as granite, gneiss, and schist. It is loam, sandy loam, or sandy clay loam.

Pelham Series

The Pelham series consists of very deep, poorly drained soils that formed in sandy and loamy sediments. These soils are in low positions on stream terraces. They are subject to brief, rare flooding during periods of unusually high or prolonged rainfall. Slopes range from 0 to 2 percent. These soils are loamy, siliceous, subactive, thermic Arenic Paleaquults.

Pelham soils are geographically associated with Goldsboro, Lynchburg, and Ocilla soils. The moderately well drained Goldsboro soils and the somewhat poorly drained Lynchburg and Ocilla soils are in slightly higher positions than those of the Pelham soils. Goldsboro and Lynchburg soils do not have a thick, sandy epipedon. Ocilla soils have a brownish argillic horizon.

Typical pedon of Pelham loamy fine sand, in an area of Pelham-Ocilla complex, 0 to 2 percent slopes, rarely flooded; about 2.9 miles northeast of Hardaway; 1,800 feet west and 2,600 feet south of the northeast corner of sec. 12, T. 15 N., R. 22 E.

Ap1—0 to 4 inches; very dark gray (2.5Y 3/1) loamy fine sand; weak fine granular structure; very friable; many fine and very fine roots and common medium roots; strongly acid; abrupt smooth boundary.

Ap2—4 to 8 inches; dark gray (2.5Y 4/1) loamy fine sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

Eg1—8 to 13 inches; light brownish gray (2.5Y 6/2) loamy fine sand; single grained; loose; common fine roots; few streaks of dark gray (2.5Y 4/1) loamy fine sand in old root channels; few fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; strongly acid; clear wavy boundary.

Eg2—13 to 26 inches; light brownish gray (2.5Y 6/2) loamy fine sand; single grained; loose; common fine roots; common streaks of dark gray (2.5Y 4/1) loamy fine sand in old root channels; common medium distinct light olive brown (2.5Y 5/6) and olive yellow (2.5Y 6/8) masses of iron accumulation; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; abrupt wavy boundary.

Btg1—26 to 35 inches; light brownish gray (2.5Y 6/2) fine sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; very friable; few fine roots; common distinct clay films on faces of peds; thin coatings of clay depletions consisting of white (2.5Y 8/1) very fine sand and silt on vertical faces of prisms; common medium distinct yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg2—35 to 51 inches; light brownish gray (2.5Y 6/2) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; common distinct clay films on faces of peds; thin coatings of clay depletions consisting of white (2.5Y 8/1) very fine sand and silt on vertical faces of prisms; many medium distinct olive yellow (2.5Y 6/6) and common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Btg3—51 to 68 inches; gray (2.5Y 6/1) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; common distinct clay films on faces of peds; thin coatings of clay depletions consisting of white (2.5Y 8/1) very fine sand and silt on vertical faces of prisms; common medium and coarse prominent strong brown (7.5YR 5/6) and few coarse distinct olive yellow (2.5Y 6/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Cg—68 to 80 inches; gray (10YR 6/1) sandy clay; massive; firm; few thin strata of white (2.5Y 8/1) fine sand and very fine sand; common fine and medium prominent strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid.

The solum is more than 60 inches thick. The thickness of the sandy epipedon ranges from 20 to 40 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been added.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2.

The Eg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It is loamy fine sand or loamy sand.

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 redoximorphic accumulations in shades of red, yellow, or brown. It is sandy clay loam, fine sandy loam, or sandy loam.

The Cg horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of red, yellow, or brown. It is dominantly sandy loam, sandy clay loam, or sandy clay. In most pedons,

however, it has strata of finer- and coarser-textured material.

Red Bay Series

The Red Bay series consists of very deep, well drained soils that formed in loamy sediments. These soils are on summits of broad ridges and high stream terraces. Slopes range from 0 to 2 percent. These soils are fine-loamy, kaolinitic, thermic Rhodic Kandiudults.

Red Bay soils are geographically associated with Cowarts, Malbis, Orangeburg, and Springhill soils. Malbis and Orangeburg soils are in positions similar to those of the Red Bay soils. Malbis soils have a brownish argillic horizon. Orangeburg soils do not have a dark red kandic horizon. Cowarts and Springhill soils are on side slopes adjacent to areas of the Red Bay soils. Cowarts soils have a brownish kandic horizon. Springhill soils do not have a dark red kandic horizon.

Typical pedon of Red Bay sandy loam, 0 to 2 percent slopes; about 2.5 miles north-northwest of Shorter; 500 feet east and 2,000 feet south of the northwest corner of sec. 26, T. 17 N., R. 21 E.

Ap1—0 to 4 inches; dark brown (7.5YR 3/3) sandy loam; weak fine granular structure; very friable; many fine and very fine roots; slightly acid; clear smooth boundary.

Ap2—4 to 9 inches; dark brown (7.5YR 3/4) sandy loam; weak medium subangular blocky structure; very friable; common fine and very fine roots; slightly acid; abrupt smooth boundary.

Bt1—9 to 15 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; few distinct dark brown (10YR 3/3) clay films on faces of peds; 5 percent rounded quartzite pebbles; strongly acid; gradual wavy boundary.

Bt2—15 to 32 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; 5 percent rounded quartzite pebbles; strongly acid; gradual wavy boundary.

Bt3—32 to 52 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common distinct clay films on faces of peds; 5 percent rounded quartzite pebbles; strongly acid; gradual wavy boundary.

Bt4—52 to 67 inches; dark red (2.5YR 3/6) sandy clay loam; weak coarse subangular blocky structure; friable; common distinct clay films on faces of peds; 5 percent rounded quartzite pebbles; strongly acid; gradual wavy boundary.

Bt5—67 to 80 inches; dark red (2.5YR 3/6) gravelly sandy clay loam; weak coarse subangular blocky structure; friable; common distinct clay films on faces of peds and on pebbles; 30 percent rounded quartzite pebbles; strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed. The content of rounded quartzite pebbles ranges from 0 to 15 percent in the upper 60 inches of the profile and from 2 to 35 percent below a depth of 60 inches.

The 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. It commonly is sandy loam or sandy clay loam, but the range in texture includes gravelly sandy clay loam in the lower part of the horizon.

Riverview Series

The Riverview series consists of very deep, well drained soils that formed in loamy alluvium. These soils are on natural levees along the Tallapoosa River and its major tributaries. They are subject to occasional flooding, usually in late winter and early spring. Slopes range from 0 to 3 percent. These soils are fine-loamy, mixed, active, thermic Fluventic Dystrudepts.

Riverview soils are geographically associated with Altavista, Bethera, Bigbee, Bruno, and Toccoa soils. Altavista soils are on terraces at the slightly higher elevations and have a brownish argillic horizon. The poorly drained Bethera soils are on low stream terraces and flood plains and have a clayey argillic horizon. Bigbee and Bruno soils are in slightly higher positions than the Riverview soils and are sandy throughout. Toccoa soils are in positions similar to those of the Riverview soils and are coarse-loamy.

Typical pedon of Riverview loam, in an area of Riverview-Bruno complex, 0 to 3 percent slopes, occasionally flooded; about 2.1 miles west-northwest of Pleasant Hill; 700 feet west and 500 feet south of the northeast corner of sec. 16, T. 17 N., R. 24 E.

A1—0 to 3 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; many fine and medium roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

A2—3 to 8 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; very friable; many fine and medium roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

Bw1—8 to 19 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; common fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw2—19 to 24 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; common fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw3—24 to 30 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw4—30 to 34 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable; many fine and medium flakes of mica; very strongly acid; clear wavy boundary.

C1—34 to 39 inches; yellowish brown (10YR 5/6) sandy loam; massive; very friable; few thin strata of loamy sand; many fine flakes of mica; few medium faint very pale brown (10YR 7/4) iron depletions; very strongly acid; gradual wavy boundary.

C2—39 to 60 inches; brownish yellow (10YR 6/6) loamy fine sand; single grained; loose; many fine flakes of mica; common coarse faint very pale brown (10YR 7/4) iron depletions; very strongly acid.

The thickness of the solum ranges from 24 to 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed. Some pedons have a buried A or B horizon or both below a depth of 20 inches. These buried horizons have the same range in color and texture as the A or B horizon.

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

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8. The quantity of redoximorphic accumulations in shades of brown and red is none or few. The texture is loam, sandy clay loam, silty 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 8. The quantity of redoximorphic accumulations in shades of yellow, brown, and red ranges from none to common. The quantity of redoximorphic depletions in shades of gray and brown is few or common. The texture is dominantly sandy loam, fine sandy loam, loamy sand, or loamy fine sand. In most pedons, however, the horizon has thin strata of finer- or coarser-textured material.

Roanoke Series

The Roanoke series consists of very deep, poorly drained soils that formed in clayey sediments. These soils are in low positions on low terraces that parallel the Tallapoosa River. They are subject to occasional flooding, usually in late winter and early spring. Slopes are 0 to 1 percent. These soils are fine, mixed, semiactive, thermic Typic Endoaquults.

Roanoke soils are geographically associated with Altavista, Cahaba, and Dogue soils. The moderately well drained Altavista and Dogue soils and the well drained Cahaba soils are in the slightly higher, more convex positions on low terraces.

Typical pedon of Roanoke silt loam, 0 to 1 percent slopes, occasionally flooded; about 2.5 miles northeast of Tysonville; 1,000 feet east and 1,850 feet north of the southwest corner of sec. 28, T. 17 N., R. 21 E.

Ap—0 to 5 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; very friable; common fine roots and few medium roots; common fine concretions of iron and manganese oxides; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; common fine faint light brownish gray (10YR 6/2) iron depletions; moderately acid; abrupt wavy boundary.

Btg1—5 to 12 inches; gray (2.5Y 5/1) silty clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; few fine concretions of iron and manganese oxides; few fine flakes of mica; many medium prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

Btg2—12 to 26 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of peds; few fine concretions of iron and manganese oxides; common coarse distinct brownish yellow (10YR 6/8) and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid; clear smooth boundary.

Btg3—26 to 38 inches; gray (2.5Y 6/1) silty clay; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine and very fine roots; common distinct gray (2.5Y 5/1) clay films on faces of peds; few fine and medium concretions of iron and manganese oxides; few fine flakes of mica; common medium prominent strong brown (7.5YR 5/8) masses of

iron accumulation; strongly acid; clear smooth boundary.

BC—38 to 52 inches; gray (2.5Y 6/1) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine and medium concretions of iron and manganese oxides; few fine flakes of mica; common medium prominent strong brown (7.5YR 5/6) and few fine prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid; gradual smooth boundary.

Cg—52 to 72 inches; thinly stratified gray (2.5Y 5/1) sand and clay; massive; few fine flakes of mica; many fine and medium concretions of iron and manganese oxides; common fine and medium prominent strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid.

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

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. It has few or common redoximorphic accumulations in shades of red, brown, and yellow.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of brown, red, and yellow. It is silty clay loam, silty clay, clay, or clay loam.

The BC horizon, where present, has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It has common or many redoximorphic accumulations in shades of brown, red, and yellow. It is clay loam, silty clay loam, sandy clay loam, sandy clay, or clay.

The Cg horizon, where present, has hue of 10YR to 5Y, value of 4 to 8, and chroma of 1 or 2. It commonly is stratified and ranges in texture from sand to clay. It has common or many redoximorphic accumulations in shades of brown, red, and yellow. In some pedons, it has strata of gravel.

Searcy Series

The Searcy series consists of very deep, moderately well drained soils that formed in clayey sediments. These soils are on side slopes in the uplands of the Blackland Prairie. Slopes range from 2 to 5 percent. These soils are fine, mixed, active, thermic Aquic Paleudalfs.

Searcy soils are geographically associated with Hannon and Oktibbeha soils. Hannon and Oktibbeha soils are in positions similar to those of the Searcy soils but are at higher elevations, are clayey to the surface, and have vertic properties.

Typical pedon of Searcy fine sandy loam, 2 to 5 percent slopes; about 2.2 miles southeast of Estelle; 2,400 feet south and 500 feet east of the northwest corner of sec. 4, T. 11 N., R. 9 E.

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

E—6 to 14 inches; brown (7.5YR 5/4) fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and few medium roots; strongly acid; clear wavy boundary.

Bt1—14 to 20 inches; strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of peds; common fine flakes of mica; few medium distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear wavy boundary.

Bt2—20 to 31 inches; yellowish red (5YR 5/6) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common fine flakes of mica; common medium distinct red (2.5YR 4/8) masses of iron accumulation; common medium prominent light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear wavy boundary.

Bt3—31 to 45 inches; 40 percent light brownish gray (10YR 6/2), 30 percent yellowish red (5YR 4/6), and 30 percent strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; common distinct clay films on faces of peds; common fine flakes of mica; areas of yellowish red and strong brown are masses of iron accumulation; areas of light brownish gray are iron depletions; very strongly acid; clear wavy boundary.

Bt4—45 to 65 inches; 40 percent gray (2.5Y 6/1), 30 percent yellowish brown (10YR 5/6), and 30 percent yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; common faint clay films on faces of peds; many fine flakes of mica; areas of yellowish brown and yellowish red are masses of iron accumulation; areas of gray are iron depletions; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the

profile, except in areas where the surface layer has been limed.

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

The E horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4. It is fine sandy loam or sandy loam.

The upper part of the Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. The quantity of redoximorphic accumulations in shades of brown, yellow, and red ranges from none to common. The quantity of redoximorphic depletions in shades of gray also ranges from none to common. The lower part of the Bt horizon has colors similar to those of the upper part, or it does not have a dominant matrix color and is multicolored in shades of red, brown, yellow, and gray. The Bt horizon commonly is clay or sandy clay, but in some pedons it has a thin layer of clay loam or sandy clay loam in the upper part.

Springhill Series

The Springhill series consists of very deep, well drained soils that formed in loamy sediments. These soils are on summits of narrow ridges and on hillslopes. Slopes range from 2 to 35 percent. These soils are fine-loamy, kaolinitic, thermic Typic Kanhapludults.

Springhill soils are geographically associated with Alaga, Cowarts, Lucy, Luverne, Troup, and Uchee soils. Alaga, Lucy, and Troup soils are in slightly higher positions than those of the Springhill soils. Alaga soils are sandy throughout. Lucy and Troup soils have a thick, sandy epipedon. Cowarts, Luverne, and Uchee soils are in positions similar to those of the Springhill soils. Cowarts soils have a brownish kandic horizon. Luverne soils have a clayey argillic horizon. Uchee soils have a thick, sandy epipedon.

Typical pedon of Springhill sandy loam, 2 to 5 percent slopes; about 1.5 miles southwest of Creek Stand; 2,100 feet west and 600 feet south of the northeast corner of sec. 24, T. 15 N., R. 25 E.

Ap—0 to 6 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—6 to 15 inches; red (2.5YR 4/6) sandy clay loam: weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—15 to 31 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—31 to 38 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt4—38 to 48 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; few medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; clear wavy boundary.

Bt5—48 to 60 inches; red (2.5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; common medium distinct light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; clear wavy boundary.

BC—60 to 77 inches; red (2.5YR 4/6) sandy loam; weak coarse subangular blocky structure; very friable; few faint clay films on faces of some peds; common medium distinct light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid; gradual wavy boundary.

C—77 to 80 inches; red (2.5YR 4/6) sandy loam; massive; very friable; few medium distinct light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid.

The solum is more than 40 inches thick. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where the surface layer has been limed. The content of rounded quartzite pebbles or fragments of ironstone or both ranges from 0 to 15 percent throughout the profile.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. It is loamy fine sand, loamy sand, or sandy loam.

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is loamy sand or sandy loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is sandy clay loam in the upper part and sandy clay loam or sandy loam in the lower part. It has few or common redoximorphic accumulations in shades of yellow, brown, or red and redoximorphic depletions in the lower part. The accumulations are relict features.

The BC horizon, where present, has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. It is sandy loam.

The C horizon, where present, has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8. It is commonly stratified. The texture ranges from sandy clay loam to loamy sand. In some pedons, the C horizon has strata of gravel.

Sucarnoochee Series

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

Sucarnoochee soils are geographically associated with Faunsdale, Maytag, Oktibbeha, and Vaiden soils. These associated soils are on uplands adjacent to areas of the Sucarnoochee soils and are not subject to flooding. Faunsdale and Maytag soils do not have a seasonal high water table within a depth of 1½ feet. Oktibbeha and Vaiden soils have a very-fine particle-size class and are acid in the upper part of the solum.

Typical pedon of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded; about 1.7 miles south-southeast of Downs; 2,300 feet west and 2,950 feet north of the southeast corner of sec. 36, T. 15 N., R. 22 E.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) clay; moderate fine and medium subangular blocky structure; firm; many fine roots; moderately alkaline; abrupt smooth boundary.

AB—6 to 15 inches; dark grayish brown (2.5Y 4/2) silty clay; strong coarse subangular blocky structure parting to moderate fine and medium angular blocky; firm; common fine roots; few fine concretions of iron and manganese oxides; few fine distinct olive (5Y 5/3) masses of iron accumulation; moderately alkaline; clear wavy boundary.

Bss1—15 to 25 inches; dark gray (2.5Y 4/1) silty clay; weak coarse subangular blocky structure parting to strong medium angular blocky; firm; common fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine concretions of iron and manganese oxides; few fine distinct olive (5Y 5/3) masses of iron accumulation; moderately alkaline; clear wavy boundary.

Bss2—25 to 34 inches; dark gray (5Y 4/1) silty clay; weak coarse angular blocky structure parting to strong medium angular blocky; firm; common fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine concretions of calcium carbonate; few fine concretions of iron and manganese oxides; many fine distinct olive (5Y 5/3) masses of iron accumulation; slightly effervescent; moderately alkaline; clear wavy boundary.

Bss3—34 to 40 inches; dark gray (5Y 4/1) silty clay; weak coarse angular blocky structure parting to strong medium angular blocky; firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine concretions of calcium carbonate; few fine concretions of iron and manganese oxides; many fine distinct olive (5Y 4/4) masses of iron accumulation; moderately effervescent; moderately alkaline; clear wavy boundary.

Bss4—40 to 65 inches; dark gray (5Y 4/1) silty clay; weak coarse angular blocky structure parting to strong medium angular blocky; firm; few fine roots; common large intersecting slickensides that have distinct polished and grooved surfaces; few fine concretions of calcium carbonate; few fine concretions of iron and manganese oxides; many coarse distinct olive (5Y 4/3) masses of iron accumulation; moderately effervescent; moderately alkaline.

The solum is more than 60 inches thick. Reaction ranges from neutral to moderately alkaline throughout the profile.

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

The AB horizon, where present, has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. It is silty clay, clay, or silty clay loam.

The Bss horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 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 redoximorphic accumulations in shades of brown, yellow, and olive and few to many redoximorphic depletions in shades of gray. It is silty clay or clay.

The Bkss horizon, where present, generally has colors and textures similar to those of the Bss horizon and has common or many concretions or soft masses or both of calcium carbonate.

Sumter Series

The Sumter series consists of moderately deep, well drained soils that formed in material weathered

from alkaline clays, marl, and chalk. These soils are on side slopes in the uplands of the Blackland Prairie. Slopes range from 5 to 25 percent. These soils are fine-silty, carbonatic, thermic Rendollic Eutrudepts.

Sumter soils are geographically associated with Hannon and Oktibbeha soils. Hannon and Oktibbeha soils are in slightly higher positions than those of the Sumter soils, have a reddish argillic horizon, and are acid in the upper part of the subsoil.

Typical pedon of Sumter silt loam, in an area of Sumter-Hannon complex, 12 to 25 percent slopes; about 2.0 miles south of Society Hill; 1,000 feet west and 1,800 feet south of the northeast corner of sec. 21, T. 16 N., R. 26 E.

Ap—0 to 4 inches; very dark grayish brown (2.5Y 3/2) silt loam; weak fine granular structure; friable; many fine roots; common fragments of fossil oyster shell; common fine soft masses of calcium carbonate; moderately effervescent; slightly alkaline; clear wavy boundary.

Bk1—4 to 12 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fragments of fossil oyster shell; common fine soft masses of calcium carbonate; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bk2—12 to 24 inches; light yellowish brown (2.5Y 6/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fragments of fossil oyster shell; many fine soft masses of calcium carbonate; few fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation; strongly effervescent; moderately alkaline; clear wavy boundary.

Bk3—24 to 35 inches; olive yellow (2.5Y 6/6) silty clay; moderate medium subangular blocky structure; firm; common fragments of fossil oyster shell; many fine soft masses of calcium carbonate; common medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; few fine distinct light gray (5Y 7/2) iron depletions; strongly effervescent; moderately alkaline; abrupt irregular boundary.

Cr—35 to 72 inches; weathered, thinly bedded strata of fossil oyster shell, chalk, and marl; massive; very firm; violently effervescent; moderately alkaline.

The thickness of the solum and the depth to soft bedrock range from 20 to 40 inches. Reaction is neutral to moderately alkaline in the A or Ap horizon and is slightly alkaline or moderately alkaline in the B horizon.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3.

The Bk horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 3 to 6. It has common or many soft masses or concretions or both of calcium carbonate. In some pedons, it has up to 10 percent fragments of oyster shell or chalk. It is silty clay loam, silty clay, or clay.

The Cr horizon consists of stratified layers of chalk, marl, and fossil oyster shell. Individual strata range from a few inches to several feet in thickness. The strata are massive or have thick platy rock structure. The Cr horizon restricts plant roots, but can be cut with difficulty using hand tools and is rippable by light equipment.

Toccoa Series

The Toccoa series consists of very deep, well drained soils that formed in loamy and sandy alluvium (fig. 18). These soils are on high parts of natural levees along the Tallapoosa River. They are subject to occasional flooding for brief periods, usually in late winter and early spring. Slopes range from 0 to 3 percent. These soils are coarse-loamy, mixed, semiactive, nonacid, thermic Typic Udifluvents.

Toccoa soils are geographically associated with Altavista, Bigbee, and Riverview soils. Altavista soils are on stream terraces at the slightly higher elevations and have a fine-loamy argillic horizon. Bigbee and Riverview soils are in positions similar to those of the Toccoa soils. Bigbee soils are sandy throughout. Riverview soils are fine-loamy.

Typical pedon of Toccoa fine sandy loam, gently undulating, occasionally flooded; about 4.5 miles west of Franklin; 2,500 feet south and 900 feet west of the northeast corner of sec. 4, T. 17 N., R. 22 E.

Ap—0 to 9 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; common fine and very fine roots; few thin strata of yellowish brown (10YR 5/4) loamy fine sand; common fine flakes of mica; 3 percent rounded quartzite pebbles; slightly acid; clear wavy boundary.

A—9 to 12 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak coarse subangular blocky structure; very friable; common fine and very fine roots; common fine flakes of mica; 3 percent rounded quartzite pebbles; moderately acid; clear smooth boundary.

C—12 to 27 inches; dark yellowish brown (10YR 4/4) loamy fine sand; massive; very friable; few fine and very fine roots; few thin strata of brown (10YR 4/3) loamy fine sand; common fine flakes of mica;

3 percent rounded quartzite pebbles; moderately acid; clear wavy boundary.

Ab—27 to 37 inches; brown (10YR 4/3) loam; weak coarse subangular blocky structure; friable; few fine and very fine roots; few thin strata of dark yellowish brown (10YR 4/4) loam; common fine flakes of mica; 3 percent rounded quartzite pebbles; moderately acid; clear smooth boundary.

C´1—37 to 43 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; very friable; few very fine roots; common fine fragments of charcoal; common fine flakes of mica; 5 percent rounded quartzite pebbles; strongly acid; clear smooth boundary.

C´2—43 to 59 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; common fine fragments of charcoal; common fine flakes of mica; 5 percent rounded quartzite pebbles; few fine faint pale brown (10YR 6/3) iron depletions; strongly acid; clear wavy boundary.

C´3—59 to 72 inches; dark yellowish brown (10YR 4/4) loamy fine sand; massive; very friable; many fine flakes of mica; 5 percent rounded quartzite pebbles; strongly acid.

Reaction is strongly acid or moderately acid throughout the profile, except in areas where the surface layer has been limed. The content of rounded quartzite pebbles ranges from 2 to 10 percent throughout the profile.

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

The Ab horizon, where present, has the same range in color as the A horizon. It is fine sandy loam, loam, or loamy fine sand.

The C and C´ horizons have hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6. They are dominantly sandy loam, fine sandy loam, loamy sand, loamy fine sand, or loam. In most pedons, however, they have strata of finer- or coarser-textured materials.

Troup Series

The Troup series consists of very deep, somewhat excessively drained soils that formed in sandy and loamy sediments. These soils are on summits of ridges and on side slopes in the uplands. Slopes range from 0 to 35 percent. These soils are loamy, kaolinitic, thermic Grossarenic Kandiudults.

Troup soils are geographically associated with Alaga, Blanton, Bonifay, Lucy, Luverne, and Springhill soils. Alaga, Blanton, Bonifay, and Lucy soils are in positions similar to those of the Troup soils. Alaga soils are sandy throughout. Blanton soils have a brownish argillic horizon and a perched seasonal high water table. Bonifay soils have a brownish argillic horizon and a significant accumulation of plinthite in the argillic horizon. Lucy soils have a sandy epipedon that is 20 to 40 inches thick. Springhill and Luverne soils are generally in lower positions than those of the Troup soils and do not have a thick, sandy epipedon. Also, Luverne soils have a clayey argillic horizon.

Typical pedon of Troup loamy fine sand, in a area of Troup-Alaga complex, 0 to 5 percent slopes; about 3 miles north of Creek Stand; 500 feet west and 2,800 feet south of the northeast corner of sec. 5, T. 15 N., R. 26 E.

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

E1—10 to 30 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grained; loose; common fine and medium roots; strongly acid; clear wavy boundary.

E2—30 to 44 inches; very pale brown (10YR 7/4) loamy fine sand; single grained; loose; few fine and medium roots; common thin streaks of pale brown (10YR 6/3) sand; strongly acid; gradual wavy boundary.

E3—44 to 57 inches; very pale brown (10YR 8/3) loamy sand; single grained; loose; few fine roots; common thin streaks of pale brown (10YR 6/3) sand; strongly acid; abrupt wavy boundary.

Bt1—57 to 75 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—75 to 90 inches; red (2.5YR 4/8) sandy clay loam; weak coarse subangular blocky structure; friable; common faint clay films on faces of peds; common medium distinct reddish yellow (7.5YR 6/6) masses of iron accumulation that are relict redoximorphic features; very strongly acid.

The thickness of the sandy epipedon ranges from 40 to 80 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. It is loamy sand or loamy fine sand.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 3 to 8. It is loamy sand or loamy fine sand.

The Bt horizon commonly has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. In some

pedons, however, it has hue of 7.5YR, value of 4 or 5, and chroma of 4 to 6. It is sandy loam, fine sandy loam, or sandy clay loam.

Uchee Series

The Uchee series consists of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on summits of ridges and on side slopes in the uplands. Slopes range from 1 to 25 percent. These soils are loamy, kaolinitic, thermic Arenic Kanhapludults.

Uchee soils are geographically associated with Cowarts, Luverne, Marvyn, and Springhill soils. Cowarts soils are in positions similar to those of the Uchee soils and do not have a thick, sandy epipedon. Marvyn and Springhill soils are in slightly higher positions than those of the Uchee soils and do not have a thick, sandy epipedon. Luverne soils are in slightly lower positions than those of the Uchee soils, have a clayey argillic horizon, and do not have a thick, sandy epipedon.

Typical pedon of Uchee loamy sand, 1 to 5 percent slopes; about 2 miles south-southwest of Chehaw; 2,300 feet south and 900 feet west of the northeast corner of sec. 22, T. 17 N., R. 23 E.

Ap—0 to 8 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; 10 percent rounded quartzite pebbles; strongly acid; clear smooth boundary.

E1—8 to 15 inches; brown (10YR 5/3) loamy sand; single grained; loose; many fine, medium, and coarse roots; 10 percent rounded quartzite pebbles; strongly acid; clear wavy boundary.

E2—15 to 23 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; many coarse roots and common fine and medium roots; 10 percent rounded quartzite pebbles; strongly acid; clear wavy boundary.

E3—23 to 28 inches; brownish yellow (10YR 6/6) loamy sand; single grained; loose; common fine and medium roots; 10 percent rounded quartzite pebbles; very strongly acid; abrupt wavy boundary.

Bt1—28 to 37 inches; yellowish brown (10YR 5/6) sandy loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few distinct clay films on faces of peds; 10 percent rounded quartzite pebbles; strongly acid; clear wavy boundary.

Bt2—37 to 46 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; 10 percent rounded quartzite pebbles; common medium prominent yellowish red (5YR 4/6) and strong brown (7.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C—46 to 65 inches; stratified light gray (10YR 7/2) sandy clay, yellowish red (2.5YR 4/6) sandy clay loam, and yellowish brown (10YR 5/6) sandy loam; massive; friable; 2 percent rounded quartzite pebbles; areas of yellowish red and yellowish brown are masses of iron accumulation; areas of light gray are iron depletions; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction is very strongly acid or strongly acid throughout the profile, except in areas where lime has been applied. The content of rounded quartzite gravel ranges from 2 to 15 percent throughout the profile.

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

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It is loamy sand or sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It has few or common redoximorphic depletions in shades of gray below a depth of 30 inches. It is sandy loam or sandy clay loam.

The C horizon commonly has no dominant matrix color and is multicolored in shades of red, brown, yellow, and gray. It is commonly stratified. The texture of the strata is dominantly sandy loam, sandy clay loam, or sandy clay but can be loamy sand and sand. In most pedons, the C horizon has strata and streaks of finer- and coarser-textured materials. In some pedons, it has strata of rounded gravel and cobbles below a depth of 60 inches.

Una Series

The Una series consists of very deep, poorly drained soils that formed in clayey alluvium. These soils are in depressional areas on flood plains. In most years, they are subject to flooding for brief periods one or more times during late winter and early spring. Slopes are 0 to 1 percent. These soils are fine, mixed, active, acid, thermic Typic Epiaquepts.

Una soils are geographically associated with Mooreville and Urbo soils. The moderately well drained Mooreville soils and the somewhat poorly drained Urbo soils are on the flood plains in slightly higher, more convex positions than those of the Una soils. Mooreville soils are fine-loamy. Urbo soils have vertic properties.

Typical pedon of Una silty clay loam, in an area of Urbo-Una-Mooreville complex, 0 to 1 percent slopes, frequently flooded; about 4 miles northwest of Warriorstand; 190 feet north and 750 feet west of the southeast corner of sec. 18, T. 16 N., R. 25 E.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine subangular blocky structure; friable; common fine, medium, and coarse roots; common medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation; strongly acid; clear wavy boundary.

Bg1—4 to 9 inches; grayish brown (2.5Y 5/2) silty clay; moderate medium subangular blocky structure; firm; few fine and medium roots; few fine and medium concretions of iron and manganese oxides; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg2—9 to 23 inches; gray (2.5Y 5/1) silty clay; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; few fine roots; common fine and medium concretions of iron and manganese oxides; common fine and medium distinct yellowish brown (10YR 5/6) and brown (10YR 4/3) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg3—23 to 53 inches; dark gray (2.5Y 4/1) clay; weak coarse subangular blocky structure parting to moderate fine angular blocky; firm; few fine roots; common fine and medium concretions of iron and manganese oxides; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

BC—53 to 80 inches; olive gray (5Y 5/2) clay; massive; firm; common fine and medium concretions of iron and manganese oxides; few fine prominent strong brown (7.5YR 5/8) and red (2.5YR 4/6) masses of iron accumulation; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. It has few or common redoximorphic accumulations in shades of red, brown, and yellow.

The Bg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It has few to many redoximorphic accumulations in shades of red, yellow, and brown. In most pedons, it has few or common soft masses or concretions or both of iron and manganese oxides. It is silty clay loam, silty clay, or clay.

The BC horizon, where present, has the same range in color as the Bg horizon. The BC horizon is fine sandy loam, loam, clay loam, silty clay loam, silty clay, or clay.

Urbo Series

The Urbo series consists of very deep, somewhat poorly drained soils that formed in clayey alluvium. These soils are in low areas on flood plains. In most years, they are subject to flooding for brief periods one or more times during late winter and early spring. Slopes are 0 to 1 percent. These soils are fine, mixed, active, acid, thermic Vertic Epiaquepts.

Urbo soils are geographically associated with Mooreville and Una soils. The moderately well drained Mooreville soils are in slightly higher, more convex positions than those of the Urbo soils and are fine-loamy. The poorly drained Una soils are in slightly lower, more concave positions than those of the Urbo soils.

Typical pedon of Urbo silty clay loam, in an area of Urbo-Una-Mooreville complex, 0 to 1 percent slopes, frequently flooded; about 4 miles northwest of Warriorstand; 400 feet west and 200 feet north of the southeast corner of sec. 18, T. 16 N., R. 25 E.

Ap—0 to 6 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak fine subangular blocky structure; friable; many fine, common medium, and few coarse roots; few fine concretions of iron and manganese oxides; very strongly acid; clear wavy boundary.

Bw—6 to 12 inches; light olive brown (2.5Y 5/3) silty clay loam; moderate medium subangular blocky structure; firm; common medium and few coarse roots; common fine faint brown (10YR 4/3) masses of iron accumulation; common fine faint grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

Bg1—12 to 25 inches; grayish brown (2.5Y 5/2) silty clay; moderate medium subangular blocky structure; firm; few medium and coarse roots; common fine prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bg2—25 to 37 inches; grayish brown (2.5Y 5/2) silty clay; moderate medium subangular blocky structure; firm; few coarse roots; common fine and medium prominent yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bssg1—37 to 50 inches; gray (2.5Y 5/1) silty clay;

weak medium subangular blocky structure; firm; few large intersecting slickensides that have polished and faintly grooved surfaces; few fine and medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bssg2—50 to 57 inches; gray (2.5Y 5/1) silty clay; weak coarse subangular blocky structure; firm; few large intersecting slickensides that have polished and faintly grooved surfaces; common medium prominent yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

Bssg3—57 to 80 inches; gray (2.5Y 6/1) clay; weak coarse subangular blocky structure; firm; common large intersecting slickensides that have polished and faintly grooved surfaces; common medium prominent red (2.5YR 4/6) and yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid.

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

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

The Bw horizon, where present, has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4; or it does not have a dominant matrix color and is multicolored in shades of brown, yellow, and gray. It has common or many redoximorphic accumulations in shades of yellow, brown, and red and common or many redoximorphic depletions in shades of gray. It is silty clay loam, silty clay, clay loam, or clay.

The Bg and Bssg horizons have hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. They have few to many redoximorphic accumulations in shades of red, yellow, and brown. They are silty clay loam, clay loam, silty clay, or clay.

Vaiden Series

The Vaiden series consists of very deep, somewhat poorly drained soils that formed in acid, clayey sediments and the underlying alkaline clay, chalk, and marl. These soils are on summits of broad ridges in the uplands of the Blackland Prairie. Slopes range from 0 to 2 percent. These soils are very-fine, smectitic, thermic Aquic Dystruderts.

Vaiden soils are geographically associated with Faunsdale, Hannon, Maytag, Oktibbeha, and Sucarnoochee soils. Faunsdale soils are on concave side slopes and toeslopes at lower elevations than the Vaiden soils and are alkaline in the upper part of the solum. Hannon and Oktibbeha soils are in more convex positions than those of the Vaiden soils and have a reddish argillic horizon. Maytag soils are in positions similar to those of the Vaiden soils but are at higher elevations and are alkaline throughout. Sucarnoochee soils are on flood plains, have a grayish cambic horizon, and are alkaline throughout.

Typical pedon of Vaiden silty clay loam, 0 to 2 percent slopes; about 2.1 miles south of Hardaway; 1,250 feet west and 2,200 feet south of the northeast corner of sec. 28, T. 15 N., R. 22 E.

Ap1—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium granular structure; firm; many fine and medium roots; moderately acid; clear smooth boundary.

Ap2—4 to 7 inches; very dark grayish brown (10YR 3/2) silty clay; weak coarse subangular blocky structure; firm; many fine and medium roots; common streaks of yellowish brown (10YR 5/8) clay; strongly acid; clear smooth boundary.

Bt—7 to 12 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; many fine and medium roots; few faint clay films on faces of peds; many pressure faces; many medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Btss1—12 to 18 inches; yellowish brown (10YR 5/8) clay; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; few fine and medium roots; common large intersecting slickensides that have faintly striated surfaces; few faint clay films on faces of peds; few medium prominent red (2.5YR 4/6) masses of iron accumulation; many medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Btss2—18 to 48 inches; 40 percent yellowish brown (10YR 5/6), 30 percent light brownish gray (10YR 6/2), and 30 percent dark red (2.5YR 3/6) clay; moderate coarse angular blocky structure parting to strong fine and medium angular blocky; firm; few fine roots that are flattened on faces of peds; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine and medium concretions of iron and manganese oxides; areas of yellowish brown and dark red are masses of iron accumulation; areas of light brownish gray are iron depletions; strongly acid; gradual wavy boundary.

Bkss1—48 to 55 inches; 35 percent yellowish brown (10YR 5/6), 35 percent light brownish gray (10YR 6/2), and 30 percent dark red (2.5YR 3/6) silty clay; moderate coarse angular blocky structure parting to strong fine and medium angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine and medium concretions of iron and manganese oxides; many fine and medium soft masses of calcium carbonate; areas of yellowish brown and dark red are masses of iron accumulation; areas of light brownish gray are iron depletions; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkss2—55 to 70 inches; 40 percent olive yellow (5Y 6/6), 30 percent light gray (5Y 7/2), and 30 percent pale olive (5Y 6/4) silty clay; moderate coarse angular blocky structure parting to strong fine and medium angular blocky; firm; common large intersecting slickensides that have distinct polished and grooved surfaces; common fine and medium concretions of iron and manganese oxides; many fine, medium, and coarse soft masses of calcium carbonate; areas of olive yellow are masses of iron accumulation; areas of light gray are iron depletions; strongly effervescent; moderately alkaline.

The depth to horizons that have secondary carbonates ranges from 36 to 80 inches. The depth to chalk bedrock is 60 inches or more.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. Reaction is very strongly acid or strongly acid, except in areas where lime has been applied.

The Bt and Btss horizons have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 8; or they do not have a dominant matrix color and are multicolored in shades of brown, gray, red, and yellow. They have common or many redoximorphic accumulations in shades of brown, red, and yellow and common or many redoximorphic depletions in shades of gray or brown. Reaction is very strongly acid in the upper part of the horizons and ranges from very strongly acid to slightly acid in the lower part.

The Bss horizon, where present, commonly does not have a dominant matrix color and is multicolored in shades of gray, brown, olive, red, and yellow. In some pedons, it has hue of 10YR or 2.5Y and value of 5 or 6. Chroma ranges from 4 to 8 in ped interiors and is 1 or 2 on the exterior of peds and on faces of slickensides. The Bss horizon has common or many redoximorphic accumulations in shades of brown, red, and yellow and common or many redoximorphic depletions in shades of gray or brown. It ranges from very strongly acid to slightly acid.

The Bkss horizon, where present, commonly does not have a dominant matrix color and is multicolored in shades of gray, brown, and olive. In some pedons, it has hue of 10YR to 5Y and value of 4 to 6. Chroma ranges from 4 to 6 in ped interiors and is 1 or 2 on the exterior of peds and on faces of slickensides. The Bkss horizon has few to many redoximorphic accumulations in shades of brown and olive and few to many redoximorphic depletions in shades of gray. It has few to many concretions and soft masses of calcium carbonate. It is silty clay or clay. Reaction ranges from neutral to moderately alkaline.

Wagram Series

The Wagram series consist of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on summits of broad ridges in the uplands. Slopes range from 1 to 3 percent. These soils are loamy, kaolinitic, thermic Arenic Kandiudults.

Wagram soils are geographically associated with Blanton, Bonifay, Lucy, Marvyn, Orangeburg, and Springhill soils. Blanton, Bonifay, and Lucy soils are in positions similar to those of the Wagram soils. Blanton and Bonifay soils have a sandy epipedon that is 40 to 80 inches thick. Lucy soils have a reddish kandic horizon. Marvyn and Orangeburg soils are in slightly higher positions than the Wagram soils and do not have a thick, sandy epipedon. Springhill soils are on side slopes adjacent to areas of the Wagram soils and do not have a thick, sandy epipedon.

Typical pedon of Wagram loamy sand, 1 to 3 percent slopes; about 2.1 miles northwest of Liverpool; 280 feet east and 1,850 feet north of the southwest corner of sec. 6, T. 16 N., R. 23 E.

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

E1—6 to 13 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak coarse subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

E2—13 to 23 inches; very pale brown (10YR 7/3) loamy fine sand; weak coarse subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B/E—23 to 29 inches; 60 percent yellowish brown (10YR 5/4) sandy loam (B); weak medium subangular blocky structure; friable; sand grains

coated and bridged with clay; 40 percent very pale brown (10YR 7/3) loamy sand (E); massive; very friable; few fine roots; very strongly acid; clear wavy boundary.

Bt1—29 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bt2—38 to 56 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 3 percent nodular plinthite; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; few medium distinct pale brown (10YR 6/3) iron depletions; very strongly acid; clear wavy boundary.

Bt3—56 to 80 inches; strong brown (7.5YR 5/6) sandy clay loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable, slightly brittle; common faint clay films on faces of peds; thin coatings of clay depletions consisting of brown (10YR 5/3) very fine sand and silt on faces of peds; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation; few medium prominent light brownish gray (10YR 6/2) iron depletions; very strongly acid.

The solum is more than 60 inches thick. 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 to 4.

The E horizon and the E part of the B/E horizon have hue of 10YR, value of 5 to 7, and chroma of 2 to 4. They are loamy fine sand or loamy sand.

The Bt horizon and the B part of the B/E horizon have hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. They are sandy clay loam or sandy loam.

Formation of the Soils

In this section, the factors of soil formation are related to the soils in Macon County, the processes of horizon differentiation are explained, and the surface geology of the county is described.

Factors of Soil Formation

Soil is a natural, three-dimensional body on the earth's surface that supports plants. It forms through weathering and other processes that act on deposited or accumulated geologic material. The kind of soil that forms depends on the type of parent material; the climate under which soil material has existed since accumulation; the relief, or lay of the land; the plant and animal life in and on the soil; and the length of time that the forces of soil formation have acted on the soil material. 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 the formation of 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 Macon County formed mainly in four kinds of parent material—acid, marine and fluvial sediments that have undergone considerable weathering in place; water-deposited material on stream terraces and flood plains; calcareous deposits; and residuum from granite, schist, and gneiss. Blanton, Conecuh, Cowarts, Luverne, Marvyn, and Uchee soils, which occur in the northern and central parts of the county, formed in acid, marine or fluvial sediments. Altavista, Eunola, Kinston, Mooreville, and Urbo soils formed in water-deposited material on stream terraces and flood plains. Hannon, Maytag, Oktibbeha, Sumter, and Vaiden soils, which occur in the southern part of the county, formed in materials weathered from alkaline marine sediments. Pacolet soils, which occur in the extreme northernmost part of the county, formed in residuum from granite, schist, and gneiss.

Climate

The climate of Macon County is warm and humid. Summers are long and hot. Winters are short and mild, and the ground rarely freezes to a depth of more than a few inches. The climate is fairly even throughout the county and accounts for few differences between the soils. Rainfall averages about 56 inches a year.

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

Relief

Relief influences the formation of soil through its effect on drainage, runoff, and erosion. In Macon County, the topography ranges from nearly level to steep. The elevation ranges from 170 to 570 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 soil. As the slope increases, the hazard of erosion becomes greater, the rate of runoff

increases, and the rate of leaching decreases. In places, the rate of erosion nearly keeps pace with soil formation. The steep soils, therefore, are generally thin and weakly developed.

The aspect of the slope affects the microclimate. Soils that face the south or southwest warm up somewhat earlier in spring and generally reach a higher temperature each day than soils that face north. The warmer soil temperatures result in accelerated chemical weathering. The north-facing soils retain moisture longer because they are shaded for longer periods and have lower temperatures. In Macon County, differences caused by the direction of slope are slight and of minor importance in soil formation.

Plants and Animals

Living organisms greatly influence the processes of soil formation and the characteristics of the soils. Trees, grasses, earthworms, rodents, fungi, bacteria, and other forms of plant and animal life are affected by the other soil-forming factors. Animal activity is largely confined to the surface layer of the soil. The soil is continually mixed by this 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 plant and animal populations in the soil affect the rate of soil formation.

The native vegetation in the uplands of Macon County consisted dominantly of coniferous and deciduous trees. The understory plants were bluestems, panicums, poison oak, greenbrier, longleaf uniola, huckleberry, honeysuckle, wax myrtle, muscadine, blackberry, and flowering dogwood. These plants represent only a very limited number of the species that once grew in the county but can be used as a guide to the plants presently in the county.

The plant communities in the area are also reflected in the distribution of species of fauna. Animals, in turn, 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 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.

The soils in Macon County range from very young to old. The youngest soils are the alluvial soils on active flood plains along streams and rivers. These soils receive deposits of sediment and are undergoing a cumulative soil-forming process. In most cases, these young soils have very weakly defined horizons, mainly because the soil-forming processes have only been active for a short time.

Soils on terraces along major streams and rivers are older than soils on flood plains but are still relatively young. They formed in material deposited by the streams, but the stream and river channels are now deeper and the overflow no longer reaches the soils. Many of these soils have relatively strong horizon development.

The oldest soils in the county are on uplands, have been in place for a long time, and have undergone considerable weathering. Most of these soils have strong horizon development.

Processes of Horizon Differentiation

The 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, which is usually called the subsurface layer, is the horizon of maximum loss of soluble or suspended material. Blanton soils have both an A horizon and an E horizon. Other soils have an A horizon but do not have an E horizon. The Conecuh soils are an example. In Macon County, organic matter has accumulated in the surface layer of all the soils 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, which is usually called the subsoil, is directly below the A or E horizon. It is the horizon of maximum accumulation of dissolved or suspended

material, such as iron or clay. The B horizon has not yet developed in very young soils, such as Kinston soils.

The C horizon is the substratum. It has been affected very little by soil-forming processes, but it may be somewhat modified by weathering.

Gleying is the chemical reduction and transfer of iron. It is evidenced in the wet soils in the county by a gray subsoil and gray mottles in other horizons. Some soils have horizons with reddish-brown mottles that indicate the segregation of iron. The Malbis soils are an example.

Leaching of carbonates and bases has occurred in most of the soils in the county. This process contributes to the development of distinct horizons and to the naturally low fertility and acid reaction of some soils. Some soils formed in material weathered from chalk or soft limestone, and they have a high content of bases and an alkaline reaction. Maytag and Sumter soils are examples.

In uniform materials, natural drainage generally is closely associated with slope or relief. It generally affects the color of the soil. Soils that formed under good drainage conditions have a subsoil that is uniformly bright in color. Bama soils are an example. Soils that formed under poor drainage conditions have a grayish color. Kinston and Myatt soils are examples. Soils that formed where drainage is intermediate have a subsoil that is mottled in shades of gray and brown. Goldsboro and Lynchburg soils are examples. The grayish color persists even after artificial drainage is provided.

In steep areas, erosion removes the surface soil. In low or depressional areas, soil materials often accumulate and add to the thickness of the surface layer. In some areas, the rate of formation of soil materials and the rate of removal are in equilibrium. The degree of relief is also related to the eluviation of clay from the E horizon to the Bt horizon.

Surface Geology

Geologically, most of the soils in Macon County are relatively young. On the basis of the degree of soil development, however, the soils range from old to very young. The mature soils in the uplands formed in residuum of igneous and metamorphic rocks and in marine sediments that have undergone considerable weathering. Many of these mature soils have relatively strong horizon development and are considered to have reached equilibrium with the environment. The youngest soils in the county developed in alluvium on active flood plains along streams. These soils are subject to frequent flooding and receive additional sediment from each flood. They have not developed well-defined horizons and retain the characteristics of the parent material.

The county includes igneous, metamorphic, and sedimentary geologic formations that range in age from Precambrian to Recent. The igneous and metamorphic formations consist mainly of granite, schist, and gneiss. The sedimentary formations consist mainly of unconsolidated sediments of sand, silt, clay, and gravel and layers of chalk, marl, limestone, and sandstone. The geologic units in the county, from oldest to youngest, include the Manchester Schist (Pine Mountain Group), the Bottle Granite, and the Loachapoka Schist (Opelika Complex) of Precambrian to Paleozoic age; the Tuscaloosa Group, undifferentiated, the Eutaw Formation, and the Blufftown Formation and Mooreville Chalk (Selma Group) of Cretaceous age; and alluvial and low terrace deposits of Quaternary age (Szabo and others, 1988).

The Manchester Schist, Bottle Granite, and Loachapoka Schist of the Southern and Inner Piedmont are in the extreme northernmost part of the county and are the oldest geologic units in the county. The Manchester Schist consists of interlayered muscovite-quartz schist and quartzite, commonly intensely sheared, and locally containing garnet, sillimanite, and graphite. The Bottle Granite consists of leucocratic, or locally, porphyritic, fine- to medium-grained, well-foliated, quartz monzonite to granite. The Loachapoka Schist consists of muscovite-quartz schist and locally contains biotite-garnet-muscovite schist. Soils that formed in materials weathered from these rocks include Pacolet soils.

The Tuscaloosa Group, undifferentiated, which is east of the Tallapoosa River in the northern part of the county, consists of light gray to reddish orange, clayey and gravelly, fine to very coarse sand that is interbedded with varicolored sandy clay and local thin beds of indurated sandstone. Gravels consist mainly of quartz and quartzite and range in size from very fine pebbles to large cobbles. Soils that formed in materials weathered from these sediments include Cowarts, Luverne, Marvyn, Springhill, and Uchee soils.

The Eutaw Formation overlies the Tuscaloosa Group, undifferentiated, and extends across the central part of the county. It consists of light greenish gray to yellowish gray, cross-bedded, well-sorted, micaceous, partly fossiliferous, fine to medium, quartz sand interbedded with dark gray, carbonaceous clay, with greenish gray, micaceous sandy clay, and with thin beds of glauconitic, fossiliferous sandstone. Massive accumulations of the fossil oyster *Ostrea*

cretacea (Morton) occur throughout much of the formation in the eastern part of the county. Soils that formed in materials weathered from these sediments include Bama, Blanton, Conecuh, Luverne, and Malbis soils.

The Blufftown Formation overlies the Eutaw Formation and extends from the Chattahoochee River Valley westward into central Russell County, where it is divided into two westward-extending tongues by an eastward-extending tongue of the Mooreville Chalk. The lower tongue of the Blufftown Formation, which extends westward across the southern part of the county and merges with the lower part of the Mooreville Chalk in southwestern Macon County, is gravelly sand, glauconitic sand, calcareous clay, and sandy clay. Soils that formed in materials weathered from these sediments include Conecuh, Lucy, Luverne, Oktibbeha, and Troup soils.

The Mooreville Chalk extends eastward across the extreme southern part of Macon County and overlies the lower tongue of the Blufftown Formation. It consists of medium, light gray to yellowish gray, fine sandy, argillaceous, fossiliferous chalk. Soils that formed in materials weathered from these sediments include Faunsdale, Hannon, Maytag, Sumter, and Vaiden soils.

Alluvial and low terrace deposits occur in stream valleys throughout the county. These deposits overlie older geologic units and consist of very pale orange to grayish orange, fine to coarse, quartz sand. Clay lenses and gravel composed mainly of quartz pebbles occur in places. Kinston, Mooreville, Riverview, Sucarnoochee, Toccoa, Una, and Urbo soils are on active flood plains. Altavista, Cahaba, Dogue, Eunola, Goldsboro, and Myatt soils are on low terraces.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management

increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

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.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as

flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

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

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

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

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

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

Fluviomarine. Said of marine sediments that contain resorted and redistributed fluvial material along with the remains of marine organisms.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

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

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

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

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

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

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

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

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

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

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

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

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

These crops return large amounts of organic matter to the soil.

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

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

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

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

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

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

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

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

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

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.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow

or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
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.

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

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low 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.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for

producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are

almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

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	0 to 3 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Gently undulating	0 to 5 percent
Rolling	5 to 15 percent
Hilly	15 to 25 percent
Steep	25 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.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic

arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Martin Dam, Alabama)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	54.7	33.8	44.2	75	9	51	5.00	2.89	6.88	8	0.2
February----	59.3	36.1	47.7	79	18	73	5.57	3.19	7.69	7	.3
March-------	68.1	43.0	55.6	85	22	210	6.70	3.81	9.27	7	.1
April-------	75.9	49.7	62.8	89	32	385	5.07	1.95	7.68	5	.0
May---------	82.0	57.3	69.6	94	41	606	3.74	1.85	5.38	5	.0
June--------	88.1	64.6	76.4	99	51	785	4.42	1.87	6.59	6	.0
July--------	90.0	68.1	79.1	99	59	892	5.36	3.33	7.20	8	.0
August------	89.5	68.0	78.7	97	60	872	3.82	1.90	5.49	5	.0
September---	85.1	63.9	74.5	95	47	731	4.04	2.08	5.76	5	.0
October-----	76.2	52.5	64.3	89	34	446	2.73	0.91	4.39	3	.0
November----	67.0	44.0	55.5	82	24	205	4.24	2.23	6.01	5	.0
December----	58.4	37.2	47.8	77	15	87	5.57	3.18	7.70	7	.0
Yearly:											
Average----	74.5	51.5	63.0	---	---	---	---	---	---	---	
Extreme----	110	0	---	101	7	---	---	---	---	---	
Total------	---	---	---	---	---	5,344	56.27	47.67	62.78	71	.6

* 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 Martin Dam, 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. 9	Mar. 28	Apr. 14
2 years in 10 later than--	Mar. 2	Mar. 21	Apr. 7
5 years in 10 later than--	Feb. 17	Mar. 7	Mar. 24
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 27	Nov. 10	Oct. 30
2 years in 10 earlier than--	Dec. 6	Nov. 18	Nov. 5
5 years in 10 earlier than--	Dec. 23	Dec. 2	Nov. 15

Table 3.--Growing Season

(Recorded in the period 1961-90 at Martin Dam, Alabama)

Probability	Daily minimum temperature during growing season		
	Higher than 24°F	Higher than 28°F	Higher than 32°F
	Days	*Days*	*Days*
9 years in 10	273	239	210
8 years in 10	284	249	219
5 years in 10	307	269	237
2 years in 10	329	289	255
1 year in 10	340	299	264

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. Altavista-Toccoa-Riverview	3	Suited: flooding, wetness.	Suited: flooding, wetness.	Well suited--------	Poorly suited: flooding, wetness.
2. Dogue-Kinston-Eunola	5	Suited: flooding, wetness.	Suited: flooding, wetness.	Suited: flooding, wetness, restricted use of equipment.	Poorly suited: flooding, wetness.
3. Kinston-Mooreville-Goldsboro	8	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness, restricted use of equipment, seedling survival.	Not suited: flooding, wetness.
4. Urbo-Una-Mooreville	6	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness, restricted use of equipment, seedling survival.	Not suited: flooding, wetness.
5. Pacolet-Marvyn	0.5	Poorly suited: restricted use of equipment, hazard of erosion.	Poorly suited: restricted use of equipment, hazard of erosion.	Suited: restricted use of equipment, hazard of erosion.	Poorly suited: slope, restricted permeability, low strength.
6. Luverne-Troup-Lucy	8	Poorly suited: restricted use of equipment, hazard of erosion, droughtiness.	Poorly suited: restricted use of equipment, hazard of erosion, droughtiness.	Suited: restricted use of equipment, hazard of erosion, seedling survival.	Poorly suited: slope, low strength, restricted permeability, droughtiness.
7. Bama-Malbis-Luverne	3.5	Suited: hazard of erosion.	Well suited----	Well suited-------	Suited: restricted permeability, wetness, shrink-swell, slope.
8. Cowarts-Uchee-Marvyn	36	Poorly suited: restricted use of equipment, hazard of erosion, droughtiness.	Suited: restricted use of equipment, hazard of erosion, droughtiness.	Suited: restricted use of equipment, hazard of erosion, seedling survival.	Suited: slope, restricted permeability, droughtiness.
9. Conecuh-Luverne	15	Poorly suited: restricted use of equipment, hazard of erosion.	Well suited----	Well suited--------	Poorly suited: shrink-swell, restricted permeability, low strength.

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				
10. Maytag-Hannon-Oktibbeha	7	Suited: hazard of erosion, poor tilth.	Well suited----	Suited: restricted use of equipment, seedling survival, excessive alkalinity.	Poorly suited: restricted permeability, shrink-swell, low strength.
11. Oktibbeha-Conecuh	7	Poorly suited: restricted use of equipment, hazard of erosion, poor tilth.	Suited: restricted use of equipment, hazard of erosion.	Suited: restricted use of equipment, seedling survival.	Poorly suited: restricted permeability, shrink-swell, low strength.
12. Sumter-Hannon-Oktibbeha	1	Poorly suited: restricted use of equipment, hazard of, erosion, poor tilth.	Poorly suited: restricted use of equipment, hazard of, erosion.	Suited: excessive alkalinity, restricted use of equipment, seedling survival.	Poorly suited: slope, shrink-swell, restricted permeability, low strength.

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

Map symbol	Soil name	Acres	Percent
AlA	Altavista silt loam, 0 to 2 percent slopes, rarely flooded	2,141	0.5
ArB	Arents, smooth	400	0.1
BaA	Bama fine sandy loam, 0 to 2 percent slopes	1,542	0.4
BaB	Bama fine sandy loam, 2 to 5 percent slopes	1,308	0.3
BeA	Bethera clay loam, 0 to 1 percent slopes, frequently flooded	2,196	0.6
BgB	Bigbee loamy sand, 1 to 3 percent slopes, rarely flooded	618	0.2
BnE	Blanton-Luverne complex, 12 to 25 percent slopes	8,764	2.2
BoB	Bonifay loamy fine sand, 1 to 5 percent slopes	1,790	0.5
CaA	Cahaba sandy loam, 0 to 2 percent slopes, rarely flooded	1,073	0.3
CmB	Compass loamy sand, 1 to 3 percent slopes	2,606	0.7
CoB	Conecuh fine sandy loam, 1 to 3 percent slopes	20,375	5.2
CoC2	Conecuh fine sandy loam, 3 to 8 percent slopes, eroded	29,593	7.5
CwD2	Cowarts loamy sand, 5 to 15 percent slopes, eroded	25,706	6.5
DgA	Dogue fine sandy loam, 0 to 2 percent slopes, rarely flooded	6,441	1.6
EuA	Eunola fine sandy loam, 0 to 2 percent slopes, rarely flooded	8,344	2.1
FaA	Faunsdale clay loam, 1 to 3 percent slopes	242	*
FuA	Fluvaquents, ponded	2,485	0.6
GoA	Goldsboro loamy fine sand, 0 to 2 percent slopes	6,535	1.7
GrA	Gritney loamy fine sand, 0 to 2 percent slopes	914	0.2
GrB	Gritney fine sandy loam, 2 to 5 percent slopes	1,420	0.4
HnB	Hannon clay loam, 1 to 3 percent slopes	824	0.2
HnC2	Hannon clay, 3 to 5 percent slopes, eroded	709	0.2
HoD2	Hannon-Maytag complex, 3 to 8 percent slopes, eroded	6,038	1.5
HsE	Hannon-Sumter complex, 5 to 12 percent slopes	1,562	0.4
KmA	Kinston-Mooreville complex, 0 to 1 percent slopes, frequently flooded	46,205	11.8
LcD	Lucy-Luverne complex, 5 to 15 percent slopes	9,431	2.4
LsB	Lucy-Luverne-Springhill complex, 1 to 5 percent slopes	3,663	0.9
LuB	Luverne sandy loam, 1 to 5 percent slopes	6,581	1.7
LuD2	Luverne sandy loam, 5 to 15 percent slopes, eroded	10,295	2.6
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes, rarely flooded	5,842	1.5
MaA	Malbis fine sandy loam, 0 to 2 percent slopes	2,625	0.7
MnA	Marvyn sandy loam, 0 to 2 percent slopes	2,158	0.5
MnB	Marvyn loamy sand, 2 to 5 percent slopes	21,241	5.4
MtA	Maytag silty clay, 0 to 2 percent slopes	3,963	1.0
MuB	Maytag-Hannon complex, 1 to 3 percent slopes	4,588	1.2
MyA	Myatt loam, 0 to 1 percent slopes, rarely flooded	3,063	0.8
OcA	Ocilla loamy fine sand, 0 to 2 percent slopes, rarely flooded	3,614	0.9
OkC2	Oktibbeha clay loam, 1 to 5 percent slopes, eroded	8,571	2.2
OkE2	Oktibbeha clay loam, 5 to 15 percent slopes, eroded	10,358	2.6
OrA	Orangeburg sandy loam, 0 to 2 percent slopes	1,079	0.3
PaD	Pacolet sandy loam, 6 to 10 percent slopes	1,419	0.4
PaE	Pacolet sandy loam, 10 to 25 percent slopes	1,036	0.3
PoA	Pelham-Ocilla complex, 0 to 2 percent slopes, rarely flooded	2,060	0.5
Pt	Pits, sand and gravel	150	*
RbA	Red Bay sandy loam, 0 to 2 percent slopes	750	0.2
ReA	Riverview silt loam, 0 to 1 percent slopes, occasionally flooded	873	0.2
RoB	Riverview-Bruno complex, 0 to 3 percent slopes, occasionally flooded	2,223	0.6
Rw	Riverwash	129	*
RyA	Roanoke silt loam, 0 to 1 percent slopes, occasionally flooded	1,391	0.4
SaB	Searcy fine sandy loam, 2 to 5 percent slopes	993	0.3
SbB	Springhill sandy loam, 2 to 5 percent slopes	1,747	0.4
SrA	Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded	1,806	0.5
StE	Sumter-Hannon complex, 12 to 25 percent slopes	5,612	1.4
TcA	Toccoa fine sandy loam, 0 to 1 percent slopes, occasionally flooded	1,177	0.3
ToB	Toccoa fine sandy loam, gently undulating, occasionally flooded	942	0.2
TpB	Troup-Alaga complex, 0 to 5 percent slopes	1,481	0.4
TsF	Troup-Springhill-Luverne complex, 15 to 35 percent slopes	5,676	1.4
UcB	Uchee loamy sand, 1 to 5 percent slopes	10,180	2.6
UcD	Uchee loamy sand, 5 to 15 percent slopes	16,961	4.3
UcE2	Uchee-Cowarts complex, 15 to 25 percent slopes, eroded	28,978	7.4
UdE	Udorthents, rough	1,380	0.4
UoC	Udorthents, smooth	81	*

See footnote at end of table.

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

Map symbol	Soil name	Acres	Percent
UuA	Udorthents-Urban land complex, 0 to 2 percent slopes	617	0.2
UvA	Urbo-Una-Mooreville complex, 0 to 1 percent slopes, frequently flooded	18,288	4.7
VaA	Vaiden silty clay loam, 0 to 2 percent slopes	3,815	1.0
WaB	Wagram loamy sand, 1 to 3 percent slopes	3,743	1.0
	Areas of water less than 40 acres	2,319	0.6
	Areas of water more than 40 acres	100	*
	Total	392,830	100.0

* Less than 0.1 percent.

Table 6.--Land Capability and Yields per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Grain sorghum	Peanuts	Wheat
		Bu	*Lbs*	*Bu*	*Bu*	*Lbs*	*Bu*
AlA---------- Altavista	IIw	125	650	40	100	3,100	50
ArB---------- Arents	IVs	---	---	---	---	---	---
BaA---------- Bama	I	120	900	40	110	4,000	50
BaB---------- Bama	IIe	100	800	35	90	3,500	35
BeA---------- Bethera	VIw	---	---	---	---	---	---
BgB---------- Bigbee	IIIs	50	---	15	50	---	25
BnE---------- Blanton-Luverne	VIIe	---	---	---	---	---	---
BoB---------- Bonifay	IIIs	60	400	25	65	2,400	40
CaA---------- Cahaba	I	125	800	40	110	3,500	55
CmB---------- Compass	IIe	90	500	30	85	3,000	40
CoB---------- Conecuh	IIIe	50	500	30	75	---	40
CoC2---------- Conecuh	IVe	---	---	25	75	---	30
CwD2---------- Cowarts	VIe	60	500	20	---	1,600	---
DgA---------- Dogue	IIw	125	700	40	100	3,700	40
EuA---------- Eunola	IIw	125	650	40	100	3,100	40
FaA---------- Faunsdale	IIe	90	650	40	70	---	35
FuA---------- Fluvaquents	VIIw	---	---	---	---	---	---
GoA---------- Goldsboro	IIw	125	650	40	100	3,100	50
GrA---------- Gritney	IIw	95	550	30	80	3,100	45

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Grain sorghum	Peanuts	Wheat
		Bu	*Lbs*	*Bu*	*Bu*	*Lbs*	*Bu*
GrB---------- Gritney	IIIe	90	500	30	75	2,900	40
HnB---------- Hannon	IIe	65	500	30	85	---	35
HnC2---------- Hannon	IIIe	60	400	25	75	---	30
HoD2---------- Hannon-Maytag	IVe	50	400	20	65	---	30
HsE---------- Hannon-Sumter	VIe	---	---	---	---	---	---
KmA---------- Kinston-Mooreville	Vw	---	---	---	---	---	---
LcD:							
Lucy----------	VIs	---	---	---	---	---	---
Luverne----------	VIe	---	---	---	---	---	---
LsB----------		80	650	25	---	2,800	---
Lucy----------	IIs						
Luverne----------	IIIe						
Springhill----------	IIe						
LuB---------- Luverne	IIIe	90	550	30	80	2,800	25
LuD2---------- Luverne	VIe	---	---	---	---	---	---
LyA---------- Lynchburg	IIw	100	600	35	85	---	30
MaA---------- Malbis	I	120	900	40	110	4,000	45
MnA---------- Marvyn	I	75	800	35	100	3,500	50
MnB---------- Marvyn	IIe	70	750	30	90	3,000	45
MtA---------- Maytag	IIe	80	---	35	80	---	40
MuB---------- Maytag-Hannon	IIe	80	---	35	85	---	40
MyA---------- Myatt	IVw	---	---	25	---	---	---
OcA---------- Ocilla	IIIw	80	500	35	75	2,200	40
OkC2---------- Oktibbeha	IIIe	60	400	25	80	---	40
OkE2---------- Oktibbeha	VIe	---	---	---	75	---	35

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Grain sorghum	Peanuts	Wheat
		Bu	*Lbs*	*Bu*	*Bu*	*Lbs*	*Bu*
OrA---------- Orangeburg	I	110	800	35	100	4,000	45
PaD---------- Pacolet	IVe	75	450	---	---	---	---
PaE---------- Pacolet	VIe	---	---	---	---	---	---
PoA:							
Pelham----------	IVw	---	---	---	---	---	---
Ocilla----------	IIIw	---	---	---	---	---	---
Pt---------- Pits	VIIIs	---	---	---	---	---	---
RbA---------- Red Bay	I	120	900	40	100	4,000	50
ReA---------- Riverview	IIw	130	800	45	110	---	55
RoB----------		130	700	40	110	---	55
Riverview----------	IIw						
Bruno----------	IIIs						
Rw---------- Riverwash	Vw	---	---	---	---	---	---
RyA---------- Roanoke	IIIw	100	550	40	40	---	45
SaB---------- Searcy	IIe	85	650	35	---	---	30
SbB---------- Springhill	IIe	90	600	25	90	3,000	45
SrA---------- Sucarnoochee	IVw	---	---	35	80	---	---
StE---------- Sumter-Hannon	VIIe	---	---	---	---	---	---
TcA---------- Toccoa	IIw	90	750	30	65	---	---
ToB---------- Toccoa	IIw	90	700	30	65	---	---
TpB---------- Troup-Alaga	IIIs	60	500	20	65	2,200	40
TsF---------- Troup-Springhill-Luverne	VIIe	---	---	---	---	---	---
UcB---------- Uchee	IIs	65	450	20	65	2,200	35
UcD---------- Uchee	IVs	---	---	---	---	---	---

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Cotton lint	Soybeans	Grain sorghum	Peanuts	Wheat
		Bu	*Lbs*	*Bu*	*Bu*	*Lbs*	*Bu*
UcE2 Uchee-Cowarts	VIe	---	---	---	---	---	---
UdE Udorthents	VIIe	---	---	---	---	---	---
UoC Udorthents	IVs	---	---	---	---	---	---
UuA:							
Udorthents	VIs	---	---	---	---	---	---
Urban land	VIIIs	---	---	---	---	---	---
UvA Urbo-Una-Mooreville	Vw	---	---	---	---	---	---
VaA Vaiden	IIIw	90	550	35	80	---	40
WaB Wagram	IIs	75	550	25	---	2,900	40

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.)

Map symbol and soil name	Bahiagrass	Improved bermudagrass	Improved bermudagrass hay	Tall fescue	Alfalfa hay	Cool-season annuals	Warm-season annuals
	AUM	*AUM*	*Tons*	*AUM*	*Tons*	*AUM*	*AUM*
AlA---------- Altavista	9.0	8.5	4.5	8.5	2.5	5.0	5.0
ArB---------- Arents	---	---	---	---	---	---	---
BaA---------- Bama	9.0	10.5	5.5	---	5.5	5.0	5.0
BaB---------- Bama	8.5	10.5	5.0	---	5.5	5.0	5.0
BeA---------- Bethera	---	---	---	---	---	---	---
BgB---------- Bigbee	7.0	7.0	4.0	---	---	3.5	3.0
BnE---------- Blanton-Luverne	5.0	---	---	---	---	---	---
BoB---------- Bonifay	7.0	8.0	4.0	---	2.0	4.5	4.0
CaA---------- Cahaba	8.5	9.0	5.0	---	5.0	5.0	4.5
CmB---------- Compass	8.5	9.0	5.0	---	4.0	4.5	4.5
CoB---------- Conecuh	6.5	6.5	3.0	8.0	2.0	4.0	4.0
CoC2---------- Conecuh	5.5	6.5	3.0	7.0	---	4.0	3.5
CwD2---------- Cowarts	6.5	6.5	3.0	---	---	3.5	3.0
DgA---------- Dogue	9.0	8.5	4.5	7.0	2.0	4.0	5.0
EuA---------- Eunola	9.0	8.5	4.5	8.5	2.5	5.0	5.0
FaA---------- Faunsdale	---	---	---	8.5	---	---	8.5
FuA---------- Fluvaquents	---	---	---	---	---	---	---
GoA---------- Goldsboro	9.0	8.5	4.5	8.5	2.5	5.0	5.0
GrA---------- Gritney	9.0	9.0	5.0	8.5	2.5	5.0	5.0

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

Map symbol and soil name	Bahiagrass	Improved bermudagrass	Improved bermudagrass hay	Tall fescue	Alfalfa hay	Cool-season annuals	Warm-season annuals
	AUM	*AUM*	*Tons*	*AUM*	*Tons*	*AUM*	*AUM*
GrB---------- Gritney	8.5	8.5	4.5	8.0	2.0	4.5	4.5
HnB---------- Hannon	---	---	---	8.0	2.5	4.0	4.5
HnC2---------- Hannon	---	---	---	8.0	---	4.0	4.0
HoD2---------- Hannon-Maytag	---	---	---	8.0	---	4.0	4.0
HsE---------- Hannon-Sumter	---	---	---	---	---	---	---
KmA---------- Kinston-Mooreville	8.0	---	---	---	---	---	---
LcD---------- Lucy-Luverne	6.5	7.0	3.5	---	---	4.0	4.0
LsB---------- Lucy-Luverne -Springhill	8.5	8.5	5.0	---	3.0	5.0	4.0
LuB---------- Luverne	7.0	7.5	4.0	6.5	3.5	4.5	4.5
LuD2---------- Luverne	7.0	8.0	3.5	6.0	---	4.0	4.0
LyA---------- Lynchburg	7.5	---	---	6.0	---	---	4.0
MaA---------- Malbis	10.0	10.0	4.5	---	5.0	5.0	5.0
MnA---------- Marvyn	10.0	10.0	4.5	---	5.0	5.0	5.0
MnB---------- Marvyn	10.0	9.0	4.5	---	4.5	5.0	4.5
MtA---------- Maytag	---	---	---	7.0	6.0	---	---
MuB---------- Maytag-Hannon	---	---	---	7.0	6.0	---	---
MyA---------- Myatt	4.5	---	---	---	---	---	---
OcA---------- Ocilla	7.5	7.0	3.5	6.0	---	---	4.0
OkC2---------- Oktibbeha	---	---	---	8.0	---	4.0	4.0
OkE2---------- Oktibbeha	---	---	---	6.5	---	---	---

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

Map symbol and soil name	Bahiagrass	Improved bermudagrass	Improved bermudagrass hay	Tall fescue	Alfalfa hay	Cool-season annuals	Warm-season annuals
	AUM	*AUM*	*Tons*	*AUM*	*Tons*	*AUM*	*AUM*
OrA---------- Orangeburg	9.0	10.5	5.5	---	5.5	5.0	5.0
PaD---------- Pacolet	6.5	7.0	3.5	6.5	---	4.0	4.0
PaE---------- Pacolet	---	---	---	---	---	---	---
PoA---------- Pelham-Ocilla	6.0	---	---	6.5	---	---	---
Pt---------- Pits	---	---	---	---	---	---	---
RbA---------- Red Bay	9.0	9.5	5.0	---	5.5	5.0	5.0
ReA---------- Riverview	8.0	10.0	5.5	---	3.0	5.0	6.0
RoB---------- Riverview-Bruno	7.0	8.0	5.0	---	3.0	4.5	5.0
Rw---------- Riverwash	---	---	---	---	---	---	---
RyA---------- Roanoke	4.5	---	---	5.0	---	---	4.0
SaB---------- Searcy	9.0	9.5	9.0	8.0	---	5.0	4.5
SbB---------- Springhill	8.0	8.0	4.0	---	4.5	4.5	4.5
SrA---------- Sucarnoochee	6.0	---	---	8.0	---	---	4.5
StE---------- Sumter-Hannon	---	---	---	---	---	---	---
TcA---------- Toccoa	8.0	10.0	5.0	6.5	3.0	---	6.0
ToB---------- Toccoa	8.0	10.0	5.0	6.5	3.0	---	6.0
TpB---------- Troup-Alaga	7.0	6.5	3.0	---	---	4.0	4.0
TsF---------- Troup-Springhill -Luverne	5.0	---	---	---	---	---	---
UcB---------- Uchee	7.0	7.5	3.5	---	---	4.5	4.0
UcD---------- Uchee	6.0	6.0	3.0	---	---	---	3.5

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

Map symbol and soil name	Bahiagrass	Improved bermudagrass	Improved bermudagrass hay	Tall fescue	Alfalfa hay	Cool-season annuals	Warm-season annuals
	AUM	*AUM*	*Tons*	*AUM*	*Tons*	*AUM*	*AUM*
UcE2---------- Uchee-Cowarts	---	---	---	---	---	---	---
UdE---------- Udorthents	---	---	---	---	---	---	---
UoC---------- Udorthents	---	---	---	---	---	---	---
UuA---------- Udorthents-Urban land	---	---	---	---	---	---	---
UvA---------- Urbo-Una-Mooreville	7.0	---	---	5.0	---	---	---
VaA---------- Vaiden	7.0	---	---	8.5	---	---	4.5
WaB---------- Wagram	7.0	8.0	4.0	---	2.0	4.5	4.0

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.)

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
AlA---------- Altavista	9A	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Longleaf pine-------	85	---	
						Sweetgum----------	100	---	
						Water oak----------	90	---	
						Yellow-poplar-------	---	---	
Arb---------- Arents	7S	Slight	Slight	Moderate	Slight	Loblolly pine-------	75	1.6	Loblolly pine.
						Longleaf pine-------	70	---	
BaA---------- Bama	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	80	---	
BaB---------- Bama	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	80	---	
BeA---------- Bethera	9W	Slight	Severe	Severe	Severe	Loblolly pine-------	90	2.2	Sweetgum.
						Sweetgum----------	90	---	
						Water oak----------	80	---	
BgB---------- Bigbee	7S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	75	1.6	Loblolly pine.
						Longleaf pine-------	65	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
BnE:									
Blanton----------	8R	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	80	---	
						Southern red oak----	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
Luverne----------	9R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80	---	
BoB---------- Bonifay	8S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Shortleaf pine------	---	---	
						Southern red oak----	---	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Suggested trees to plant
CaA---------- Cahaba	10A	Slight	Slight	Slight	Slight	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, water oak.
						Shortleaf pine------	85	---	
						Southern red oak----	---	---	
						Sweetgum----------	95	---	
						Water oak----------	95	---	
						Yellow-poplar-------	105	---	
CmB---------- Compass	10A	Slight	Slight	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine.
						Longleaf pine-------	75	---	
						Sweetgum----------	---	---	
CoB---------- Conecuh	9C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	75	---	
						Sweetgum----------	90	---	
						Water oak----------	90	---	
CoC2---------- Conecuh	9C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Shortleaf pine------	80	---	
						Sweetgum----------	90	---	
						Water oak----------	90	---	
CwD2---------- Cowarts	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
						Shortleaf pine------	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
DgA---------- Dogue	9W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, cherrybark oak, sweetgum, water oak.
						American sycamore---	---	---	
						Cherrybark oak------	---	---	
						Sweetgum----------	85	---	
						Water oak----------	90	---	
						Yellow-poplar-------	90	---	
EuA---------- Eunola	10W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum, water oak, yellow-poplar.
						Sweetgum----------	95	---	
						Water oak----------	85	---	
						Yellow-poplar-------	95	---	
FaA---------- Faunsdale	4C	Slight	Moderate	Moderate	Moderate	Eastern redcedar----	40	**	Eastern redcedar.
						Green ash----------	---	---	
						Pecan----------	---	---	
						Sugarberry----------	---	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
FuA---------- Fluvaquents	---	Slight	Severe	Severe	Severe	Baldcypress---------	---	---	Baldcypress, water tupelo.
						Water tupelo--------	---	---	
GoA---------- Goldsboro	10W	Slight	Moderate	Slight	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, American sycamore, cherrybark oak, sweetgum, water oak, willow oak, yellow-poplar.
						American sycamore---	85	---	
						Sweetgum----------	90	---	
						Water oak----------	85	---	
						Yellow-poplar-------	90	---	
GrA---------- Gritney	8A	Slight	Moderate	Slight	Moderate	Loblolly pine-------	85	2.0	Loblolly pine.
						Shortleaf pine------	---	---	
						Southern red oak----	---	---	
						Sweetgum----------	---	---	
						Yellow-poplar-------	---	---	
GrB---------- Gritney	8A	Slight	Moderate	Slight	Moderate	Loblolly pine-------	85	2.0	Loblolly pine.
						Shortleaf pine------	---	---	
						Southern red oak----	---	---	
						Sweetgum----------	---	---	
						Yellow-poplar-------	---	---	
HnB---------- Hannon	7C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	50	---	
						Longleaf pine-------	70	---	
						Shortleaf pine------	70	---	
						Sugarberry----------	---	---	
						Sweetgum----------	---	---	
HnC2---------- Hannon	7C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	50	---	
						Longleaf pine-------	70	---	
						Shortleaf pine------	70	---	
						Sugarberry----------	---	---	
						Sweetgum----------	---	---	
HoD2:									
Hannon----------	7C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	50	---	
						Longleaf pine-------	70	---	
						Shortleaf pine------	70	---	
						Sugarberry----------	---	---	
						Sweetgum----------	---	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
HoD2:									
Maytag	4C	Slight	Moderate	Severe	Moderate	Eastern redcedar	40	**	Eastern redcedar.
						Sugarberry	---	---	
HsE:									
Hannon	7C	Slight	Moderate	Severe	Moderate	Loblolly pine	80	1.8	Loblolly pine.
						Longleaf pine	70	---	
						Eastern redcedar	50	---	
						Shortleaf pine	70	---	
						Sweetgum	---	---	
Sumter	4C	Slight	Moderate	Severe	Slight	Eastern redcedar	40	**	Eastern redcedar.
KmA:									
Kinston	9W	Slight	Severe	Severe	Severe	Loblolly pine	90	2.2	Loblolly pine, green ash, sweetgum, water oak, willow oak.
						Green ash	80	---	
						Sweetgum	85	---	
						Water oak	---	---	
Mooreville	12W	Slight	Moderate	Severe	Severe	Loblolly pine	105	2.9	Loblolly pine, American sycamore, cherrybark oak, green ash, sweetgum, water oak, yellow-poplar.
						Cherrybark oak	100	---	
						Green ash	85	---	
						Sweetgum	105	---	
						Water oak	100	---	
						Yellow-poplar	100	---	
LcD:									
Lucy	8S	Slight	Moderate	Moderate	Slight	Loblolly pine	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine	75	---	
Luverne	9C	Slight	Moderate	Slight	Moderate	Loblolly pine	90	2.2	Loblolly pine.
						Longleaf pine	75	---	
						Shortleaf pine	75	---	
						Sweetgum	---	---	
						Water oak	---	---	
LsB:									
Lucy	8S	Slight	Moderate	Moderate	Slight	Loblolly pine	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine	75	---	
Luverne	9C	Slight	Moderate	Slight	Moderate	Loblolly pine	90	2.2	Loblolly pine.
						Longleaf pine	75	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
LsB:									
Springhill	9A	Slight	Slight	Slight	Slight	Loblolly pine	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine	75	---	
						Shortleaf pine	80	---	
						Southern red oak	80	---	
						Sweetgum	90	---	
						Water oak	90	---	
LuB Luverne	9C	Slight	Moderate	Slight	Moderate	Loblolly pine	90	2.2	Loblolly pine.
						Longleaf pine	75	---	
						Shortleaf pine	---	---	
						Sweetgum	---	---	
						Water oak	---	---	
LuD2 Luverne	9C	Moderate	Moderate	Slight	Moderate	Loblolly pine	90	2.2	Loblolly pine.
						Longleaf pine	75	---	
						Shortleaf pine	75	---	
						Sweetgum	---	---	
						Water oak	---	---	
LyA Lynchburg	9W	Slight	Moderate	Moderate	Severe	Loblolly pine	85	2.2	Loblolly pine, cherrybark oak, sweetgum, water oak, willow oak.
						Blackgum	---	---	
						Sweetgum	90	---	
						Water oak	80	---	
						Willow oak	80	---	
						Yellow-poplar	85	---	
MaA Malbis	10A	Slight	Slight	Slight	Slight	Loblolly pine	95	2.5	Loblolly pine.
						Longleaf pine	80	---	
						Sweetgum	---	---	
						Water oak	---	---	
MnA Marvyn	9A	Slight	Slight	Slight	Slight	Loblolly pine	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine	80	---	
						Shortleaf pine	80	---	
						Sweetgum	---	---	
						Water oak	---	---	
MnB Marvyn	9A	Slight	Slight	Slight	Slight	Loblolly pine	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine	80	---	
						Shortleaf pine	80	---	
						Sweetgum	---	---	
						Water oak	---	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
MtA---------- Maytag	4C	Slight	Moderate	Severe	Moderate	Eastern redcedar----	40	**	Eastern redcedar.
						Sugarberry----------	---	---	
MuB:									
Maytag----------	4C	Slight	Moderate	Severe	Moderate	Eastern redcedar----	40	**	Eastern redcedar.
						Sugarberry----------	---	---	
Hannon----------	7C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	50	---	
						Longleaf pine-------	70	---	
						Shortleaf pine------	70	---	
						Sweetgum----------	---	---	
MyA---------- Myatt	9W	Slight	Severe	Severe	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum.
						Green ash----------	80	---	
						Sweetgum----------	90	---	
						Water oak----------	95	---	
OcA---------- Ocilla	9W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						American sycamore---	95	---	
						Sweetgum----------	100	---	
						Water oak----------	90	---	
OkC2---------- Oktibbeha	9C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Eastern redcedar----	55	---	
						Shortleaf pine------	70	---	
						Longleaf pine-------	70	---	
						Sweetgum----------	---	---	
OkE2---------- Oktibbeha	9C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Eastern redcedar----	55	---	
						Longleaf pine-------	70	---	
						Shortleaf pine------	70	---	
						Sweetgum----------	---	---	
OrA---------- Orangeburg	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Shortleaf pine------	75	---	
PaD---------- Pacolet	7A	Slight	Slight	Slight	Slight	Loblolly pine-------	80	1.8	Loblolly pine.
						Hickory----------	---	---	
						Shortleaf pine------	70	---	
						White oak----------	---	---	
						Yellow-poplar-------	90	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
PaE---------- Pacolet	7R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	80	1.8	Loblolly pine.
						Hickory----------	---	---	
						Shortleaf pine------	70	---	
						White oak----------	---	---	
						Yellow-poplar-------	90	---	
PoA:									
Pelham----------	9W	Slight	Severe	Severe	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Blackgum----------	80	---	
						Longleaf pine-------	80	---	
						Sweetgum----------	80	---	
						Water oak----------	75	---	
Ocilla----------	9W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	90	2.2	Loblolly pine.
						Longleaf pine-------	75	---	

Pt. Pits									
RbA---------- Red Bay	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
ReA---------- Riverview	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, American sycamore, cherrybark oak, green ash, sweetgum, water oak, yellow-poplar.
						American sycamore---	105	---	
						Cherrybark oak------	105	---	
						Green ash----------	---	---	
						Sweetgum----------	100	---	
						Water oak----------	100	---	
						Yellow-poplar-------	100	---	
RoB:									
Riverview--------	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, American sycamore, cherrybark oak, green ash, sweetgum, water oak, yellow-poplar.
						American sycamore---	105	---	
						Cherrybark oak------	105	---	
						Sweetgum----------	100	---	
						Water oak----------	100	---	
						Yellow-poplar-------	100	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
RoB:									
Bruno----------	10S	Slight	Slight	Moderate	Moderate	Loblolly pine-------	95	2.5	Loblolly pine, cherrybark oak, sweetgum, water oak.
						American sycamore---	110	---	
						Black willow--------	---	---	
						Cherrybark oak------	110	---	
						Eastern cottonwood--	115	---	
						Sweetgum----------	105	---	
						Water oak----------	100	---	
						Willow oak----------	100	---	
						Yellow-poplar-------	105	---	
Rw. Riverwash									
RyA---------- Roanoke	9W	Slight	Severe	Moderate	Severe	Loblolly pine-------	95	2.5	Loblolly pine, sweetgum.
						Sweetgum----------	80	---	
						Water oak----------	---	---	
						Willow oak----------	75	---	
SaB---------- Searcy	12C	Slight	Moderate	Slight	Moderate	Loblolly pine-------	105	2.9	Loblolly pine.
						Longleaf pine-------	---	---	
						Shortleaf pine------	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
SbB---------- Springhill	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Shortleaf pine------	80	---	
						Sweetgum----------	90	---	
						Water oak----------	90	---	
SrA---------- Sucarnoochee	6W	Slight	Severe	Severe	Severe	Sweetgum----------	100	1.4	Sweetgum, American sycamore, eastern cottonwood.
						American sycamore---	100	---	
						Eastern cottonwood--	110	---	
						Cherrybark oak------	100	---	
						Green ash----------	90	---	
						Yellow-poplar-------	110	---	
StE:									
Sumter----------	4R	Moderate	Moderate	Severe	Moderate	Eastern redcedar----	40	**	Eastern redcedar.
Hannon----------	7R	Moderate	Severe	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	50	---	
						Shortleaf pine------	70	---	
						Longleaf pine-------	70	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
TcA---------- Toccoa	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, American sycamore, cherrybark oak, green ash, water oak, yellow-poplar.
						American sycamore---	115	---	
						Eastern cottonwood--	---	---	
						Shortleaf pine------	90	---	
						Sweetgum----------	110	---	
						Water oak----------	---	---	
						Yellow-poplar-------	115	---	
ToB---------- Toccoa	11A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	2.7	Loblolly pine, American sycamore, cherrybark oak, green ash, water oak, yellow-poplar.
						American sycamore---	115	---	
						Eastern cottonwood--	---	---	
						Shortleaf pine------	90	---	
						Sweetgum----------	100	---	
						Yellow-poplar-------	100	---	
TpB:									
Troup----------	8S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Southern red oak----	---	---	
Alaga----------	8S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	80	---	
TsF:									
Troup----------	8R	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	---
						Longleaf pine-------	70	---	
Springhill-------	9R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	---	
						Shortleaf pine------	80	---	
						Southern red oak----	80	---	
						Sweetgum----------	90	---	
						Water oak----------	90	---	
Luverne----------	9R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine.
						Shortleaf pine------	80	---	
UcB---------- Uchee	8S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
						Shortleaf pine------	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
UcD---------- Uchee	8S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
						Shortleaf pine------	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
UcE2:									
Uchee----------	8R	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	80	1.8	---
						Longleaf pine-------	70	---	
						Shortleaf pine------	---	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	
Cowarts----------	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	2.0	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	---	
UdE---------- Udorthents	6D	Severe	Moderate	Severe	Slight	Loblolly pine-------	70	1.4	Loblolly pine.
UoC---------- Udorthents	7D	Moderate	Moderate	Severe	Slight	Loblolly pine-------	75	1.6	Loblolly pine.
UuA. Udorthents Urban land									
UvA:									
Urbo----------	10W	Slight	Severe	Severe	Severe	Loblolly pine-------	95	2.5	Loblolly pine, American sycamore, cherrybark oak, sweetgum, water oak, willow oak, yellow-poplar.
						American sycamore---	90	---	
						Cherrybark oak------	95	---	
						Green ash----------	85	---	
						Sweetgum----------	95	---	
						Water oak----------	90	---	
Una----------	7W	Slight	Severe	Severe	Severe	Water tupelo--------	70	0.5	Water tupelo, baldcypress, swamp tupelo.
						Baldcypress---------	80	---	
						swamp tupelo--------	---	---	
Mooreville-------	12W	Slight	Moderate	Severe	Severe	Loblolly pine-------	105	2.9	Loblolly pine, cherrybark oak, eastern cottonwood, green ash, sweetgum, yellow-poplar.
						Cherrybark oak------	100	---	
						Eastern cottonwood--	105	---	
						Green ash----------	85	---	
						Sweetgum----------	105	---	
						Yellow-poplar-------	100	---	

Table 8.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
VaA---------- Vaiden	8C	Slight	Moderate	Severe	Moderate	Loblolly pine-------	80	1.8	Loblolly pine.
						Eastern redcedar----	45	---	
						Shortleaf pine------	65	---	
						Southern red oak----	70	---	
WaB---------- Wagram	9S	Slight	Moderate	Moderate	Slight	Loblolly pine-------	90	2.2	Loblolly pine, longleaf pine, shortleaf pine.
						Longleaf pine-------	75	---	
						Shortleaf pine------	75	---	
						Sweetgum----------	---	---	
						Water oak----------	---	---	

* Volume is the average yearly growth in cords per acre per year for fully stocked natural stands calculated at 25 years of age for loblolly pine and at 30 years of age for oak and tupelo.

** Volume for eastern redcedar is 140 board feet per acre per year calculated at 40 years of age for fully stocked natural stands.

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. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AlA: Altavista	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
ArB: Arents	Variable	Variable	Variable	Variable	Variable.
BaA: Bama	Slight	Slight	Slight	Slight	Slight.
BaB: Bama	Slight	Slight	Moderate: slope.	Slight	Slight.
BeA: Bethera	Severe: flooding, wetness.	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: flooding, wetness.
BgB: Bigbee	Severe: flooding, too sandy, droughty.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: flooding, too sandy, droughty.
BnE:					
Blanton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too sandy.	Severe: slope.
Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
BoB: Bonifay	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
CaA: Cahaba	Severe: flooding.	Slight	Slight	Slight	Slight.
CmB: Compass	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
CoB: Conecuh	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Moderate: droughty.
CoC2: Conecuh	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly, slope.	Severe: erodes easily.	Moderate: droughty.
CwD2: Cowarts	Moderate: percs slowly, slope.	Moderate: percs slowly, slope.	Severe: slope.	Slight	Moderate: slope, droughty.
DgA: Dogue	Severe: wetness.	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
EuA: Eunola	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.

Table 9.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
FaA: Faunsdale	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
FuA: Fluvaquents	Severe: flooding, ponding.	Severe: ponding.	Severe: flooding, ponding.	Severe: ponding.	Severe: flooding, ponding.
GoA: Goldsboro	Slight: too acid.	Slight: too acid.	Slight: too acid.	Slight	Slight.
GrA: Gritney	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: small stones, wetness.	Moderate: wetness.	Moderate: wetness.
GrB: Gritney	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: small stones, wetness.	Moderate: wetness.	Moderate: wetness.
HnB: Hannon	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Moderate: droughty.
HnC2: Hannon	Severe: percs slowly, too clayey.	Severe: percs slowly, too clayey.	Severe: percs slowly, too clayey.	Severe: too clayey.	Severe: too clayey.
HoD2:					
Hannon	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Severe: too clayey.	Severe: too clayey.
Maytag	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: too clayey.	Severe: too clayey.
HsE:					
Hannon	Severe: percs slowly, too clayey.	Severe: percs slowly, too clayey.	Severe: percs slowly, slope, too clayey.	Severe: too clayey.	Severe: too clayey.
Sumter	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: erodes easily, too clayey.	Severe: too clayey.
KmA:					
Kinston	Severe: flooding, wetness.	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: flooding, wetness.
Mooreville	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.
LcD:					
Lucy	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope, droughty.
Luverne	Moderate: percs slowly, slope.	Moderate: percs slowly, slope.	Severe: slope.	Slight	Moderate: slope.
LsB:					
Lucy	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.

Table 9.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
LsB:					
Luverne	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly, slope, small stones.	Slight	Slight.
Springhill	Slight	Slight	Moderate: slope.	Slight	Slight.
LuB Luverne	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly, slope, small stones.	Slight	Slight.
LuD2 Luverne	Moderate: percs slowly, slope.	Moderate: percs slowly, slope.	Severe: slope.	Slight	Moderate: slope.
LyA Lynchburg	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
MaA Malbis	Slight	Slight	Slight	Slight	Slight.
MnA Marvyn	Slight	Slight	Slight	Slight	Slight.
MnB Marvyn	Slight	Slight	Moderate: slope.	Slight	Slight.
MtA Maytag	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
MuB:					
Maytag	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly, slope.	Slight	Slight.
Hannon	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Moderate: droughty.
MyA Myatt	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
OcA Ocilla	Severe: flooding.	Moderate: too sandy, wetness.	Moderate: too sandy, wetness.	Moderate: too sandy, wetness.	Moderate: wetness, droughty.
OkC2 Oktibbeha	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Severe: too clayey.
OkE2 Oktibbeha	Severe: percs slowly, slope.	Severe: percs slowly, slope.	Severe: percs slowly, slope.	Severe: slope, too clayey.	Severe: slope, too clayey.
OrA Orangeburg	Slight	Slight	Slight	Slight	Slight.
PaD Pacolet	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.

Table 9.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
PaE: Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
PoA:					
Pelham	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ocilla	Severe: flooding.	Moderate: too sandy, wetness.	Moderate: too sandy, wetness.	Moderate: too sandy, wetness.	Moderate: flooding, wetness, droughty.
Pt: Pits	Variable	Variable	Variable	Variable	Variable.
RbA: Red Bay	Slight	Slight	Slight	Slight	Slight.
ReA: Riverview	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
RoB:					
Riverview	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
Bruno	Slight	Slight	Moderate: flooding, slope.	Slight	Moderate: flooding, droughty.
Rw: Riverwash	Severe: flooding, too sandy.	Severe: too sandy.	Severe: flooding, too sandy.	Severe: too sandy.	Severe: flooding.
RyA: Roanoke	Severe: flooding, wetness, too acid.	Severe: wetness, too acid.	Severe: wetness, too acid.	Severe: wetness,	Severe: wetness,
SaB: Searcy	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: percs slowly, slope, wetness.	Slight	Slight.
SbB: Springhill	Slight	Slight	Moderate: slope.	Slight	Slight.
SrA: Sucarnoochee	Severe: flooding, percs slowly, wetness.	Severe: percs slowly, too clayey, wetness.	Severe: flooding, too clayey, wetness.	Severe: too clayey, wetness.	Severe: flooding, too clayey, wetness.
StE:					
Sumter	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Hannon	Severe: percs slowly, slope, too clayey.	Severe: percs slowly, slope, too clayey.	Severe: percs slowly, slope, too clayey.	Severe: too clayey.	Severe: slope, too clayey.
TcA: Toccoa	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.

Table 9.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ToB: Toccoa	Severe: flooding.	Slight	Moderate: flooding, slope.	Slight	Moderate: flooding.
TpB:					
Troup	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
Alaga	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
TsF:					
Troup	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too sandy.	Severe: slope.
Springhill	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
UcB: Uchee	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, small stones.	Moderate: too sandy.	Moderate: droughty.
UcD: Uchee	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: slope, droughty.
UcE2:					
Uchee	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too sandy.	Severe: slope.
Cowarts	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
UdE: Udorthents	Variable	Variable	Variable	Variable	Variable.
UoC: Udorthents	Variable	Variable	Variable	Variable	Variable.
UuA:					
Udorthents	Variable	Variable	Variable	Variable	Variable.
Urban land	Variable	Variable	Variable	Variable	Variable.
UvA:					
Urbo	Severe: flooding, percs slowly, wetness.	Severe: percs slowly.	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding.
Una	Severe: flooding, percs slowly, ponding.	Severe: percs slowly, ponding.	Severe: flooding, ponding.	Severe: ponding.	Severe: flooding, ponding.

Table 9.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
UvA:					
Mooreville	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.
VaA	Severe: percs slowly, wetness.	Severe: percs slowly, too clayey.	Severe: too clayey, wetness.	Severe: too clayey.	Severe: too clayey.
WaB	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.

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.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AlA---------- Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ArB---------- Arents	Poor	Poor	Poor	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
BaA---------- Bama	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
BaB---------- Bama	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
BeA---------- Bethera	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Poor	Good.
BgB---------- Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
BnE:										
Blanton----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Luverne----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BoB---------- Bonifay	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
CaA---------- Cahaba	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CmB---------- Compass	Poor	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
CoB---------- Conecuh	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
CoC2---------- Conecuh	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CwD2---------- Cowarts	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
DgA---------- Dogue	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
EuA---------- Eunola	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
FaA---------- Faunsdale	Good	Good	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
FuA---------- Fluvaquents	Very poor.	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
GoA---------- Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
GrA---------- Gritney	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
GrB---------- Gritney	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HnB---------- Hannon	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
HnC2---------- Hannon	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
HoD2:										
Hannon----------	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
Maytag----------	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
HsE:										
Hannon----------	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
Sumter----------	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
KmA:										
Kinston----------	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Mooreville-------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
LcD:										
Lucy----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Luverne----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LsB:										
Lucy----------	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Luverne----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Springhill-------	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LuB---------- Luverne	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LuD2---------- Luverne	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LyA---------- Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
MaA---------- Malbis	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MnA---------- Marvyn	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MnB: Marvyn	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MtA: Maytag	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
MuB:										
Maytag	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
Hannon	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
MyA: Myatt	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
OcA: Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
OkC2: Oktibbeha	Fair	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Poor.
OkE2: Oktibbeha	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
OrA: Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PaD: Pacolet	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
PaE: Pacolet	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
PoA:										
Pelham	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair
Pt: Pits	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor	Very poor.
RbA: Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReA: Riverview	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Fair.
RoB:										
Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Fair.
Bruno	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rw: Riverwash	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor	Very poor.
RyA: Roanoke	Poor	Poor	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
SaB: Searcy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
SbB---------- Springhill	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SrA---------- Sucarnoochee	Poor	Fair	Poor	Good	Poor	Fair	Fair	Poor	Fair	Fair.
StE:										
Sumter----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Hannon----------	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Poor	Good	Poor.
TcA---------- Toccoa	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ToB---------- Toccoa	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TpB:										
Troup----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Alaga----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
TsF:										
Troup----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Springhill-------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Luverne----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
UcB---------- Uchee	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
UcD---------- Uchee	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
UcE2:										
Uchee----------	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Cowarts----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
UdE---------- Udorthents	Poor	Fair	Fair	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.
UoC---------- Udorthents	Fair	Fair	Fair	Fair	Good	Poor	Poor	Fair	Fair	Poor.
UuA:										
Udorthents-------	Fair	Fair	Fair	Fair	Good	Poor	Poor	Fair	Fair	Poor.
Urban land.										

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
UvA:										
Urbo	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Fair	Fair.
Una	Poor	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Very poor	Good.
Mooreville	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
VaA Vaiden	Fair	Fair	Fair	Good	Good	Poor	Fair	Fair	Good	Poor.
WaB Wagram	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

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.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AlA---------- Altavista	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
ArB---------- Arents	Variable-------	Variable------	Variable------	Variable------	Variable------	Variable.
BaA---------- Bama	Slight---------	Slight--------	Slight--------	Slight--------	Slight--------	Slight.
BaB---------- Bama	Slight---------	Slight--------	Slight--------	Slight--------	Slight--------	Slight.
BeA---------- Bethera	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, low strength, wetness.	Severe: flooding, wetness.
BgB---------- Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Moderate: flooding, too sandy, droughty.
BnE:						
Blanton-------	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Luverne-------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
BoB---------- Bonifay	Severe: cutbanks cave.	Slight--------	Moderate: wetness.	Slight--------	Slight--------	Moderate: droughty.
CaA---------- Cahaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
CmB---------- Compass	Moderate: too clayey, wetness.	Slight--------	Moderate: wetness.	Slight--------	Slight--------	Moderate: droughty.
CoB---------- Conecuh	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: droughty.
CoC2---------- Conecuh	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: droughty.
CwD2---------- Cowarts	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
DgA---------- Dogue	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Moderate: wetness.

Table 11.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EuA---------- Eunola	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Moderate: wetness.
FaA---------- Faunsdale	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
FuA---------- Fluvaquents	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding
GoA---------- Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
GrA---------- Gritney	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: low strength.	Moderate: wetness.
GrB---------- Gritney	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: low strength.	Moderate: wetness.
HnB---------- Hannon	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: droughty.
HnC2---------- Hannon	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
HoD2:						
Hannon--------	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
Maytag--------	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
HsE:						
Hannon--------	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Severe: too clayey.
Sumter--------	Moderate: slope, too clayey, depth to rock.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Severe: too clayey.
KmA:						
Kinston-------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, low strength, wetness.	Severe: flooding, wetness.
Mooreville----	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, low strength.	Severe: flooding.

Table 11.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
LcD:						
Lucy	Moderate: slope, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
Luverne	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength, slope.	Moderate: slope.
LsB:						
Lucy	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
Luverne	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
Springhill	Slight	Slight	Slight	Slight	Slight	Slight.
LuB Luverne	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
LuD2 Luverne	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
LyA Lynchburg	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
MaA Malbis	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.
MnA Marvyn	Slight	Slight	Slight	Slight	Slight	Slight.
MnB Marvyn	Slight	Slight	Slight	Slight	Slight	Slight.
MtA Maytag	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
MuB:						
Maytag	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
Hannon	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: droughty.
MyA Myatt	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
OcA Ocilla	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Moderate: flooding, wetness.	Moderate: wetness, droughty.
OkC2 Oktibbeha	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.

Table 11.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
OkE2---------- Oktibbeha	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Severe: slope, too clayey.
OrA---------- Orangeburg	Slight---------	Slight--------	Slight--------	Slight--------	Slight--------	Slight.
PaD---------- Pacolet	Moderate: slope, too clayey.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
PaE---------- Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PoA:						
Pelham--------	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
Ocilla--------	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Moderate: flooding, wetness, droughty.
Pt---------- Pits	Variable-------	Variable------	Variable------	Variable------	Variable------	Variable.
RbA---------- Red Bay	Slight---------	Slight--------	Slight--------	Slight--------	Slight--------	Slight.
ReA---------- Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
RoB:						
Riverview-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Bruno---------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, droughty.
Rw---------- Riverwash	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
RyA---------- Roanoke	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, low strength, wetness.	Severe: wetness.
SaB---------- Searcy	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: wetness.	Moderate: shrink-swell, wetness.	Severe: low strength.	Slight.
SbB---------- Springhill	Slight---------	Slight--------	Slight--------	Slight--------	Slight--------	Slight.
SrA---------- Sucarnoochee	Severe: wetness.	Severe: flooding, shrink-swell, wetness.	Severe: flooding, shrink-swell, wetness.	Severe: flooding, shrink-swell, wetness.	Severe: flooding, low strength, wetness.	Severe: flooding, too clayey, wetness.

Table 11.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
StE:						
Sumter	Severe: slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell, slope.	Severe: slope.
Hannon	Severe: slope, cutbanks cave.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell, slope.	Severe: slope, too clayey.
TcA Toccoa	Moderate: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
ToB Toccoa	Moderate: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
TpB:						
Troup	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
Alaga	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
TsF:						
Troup	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Springhill	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Luverne	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
UcB Uchee	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
UcD Uchee	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope, wetness.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
UcE2:						
Uchee	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Cowarts	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
UdE Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
UoC Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
UuA:						
Udorthents	Variable	Variable	Variable	Variable	Variable	Variable
Urban land.						

Table 11.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
UvA:						
Urbo----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, low strength.	Severe: flooding.
Una----------	Severe: ponding.	Severe: flooding, shrink-swell, ponding.	Severe: flooding, shrink-swell, ponding.	Severe: flooding, shrink-swell, ponding.	Severe: low strength, shrink-swell, ponding.	Severe: flooding, ponding.
Mooreville----	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, low strength.	Severe: flooding.
VaA---------- Vaiden	Severe: wetness, cutbanks cave.	Severe: shrink-swell, wetness.	Severe: shrink-swell, wetness.	Severe: shrink-swell, wetness.	Severe: low strength, shrink-swell.	Severe: too clayey.
WaB---------- Wagram	Severe: cutbanks cave.	Slight--------	Slight--------	Slight--------	Slight--------	Moderate: droughty.

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.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AlA---------- Altavista	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
ArB---------- Arents	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
BaA---------- Bama	Slight---------	Moderate: seepage.	Slight---------	Slight---------	Good.
BaB---------- Bama	Slight---------	Moderate: seepage, slope.	Slight---------	Slight---------	Good.
BeA---------- Bethera	Severe: flooding, percs slowly, wetness.	Severe: flooding, wetness.	Severe: flooding, too clayey, wetness.	Severe: flooding, wetness.	Poor: hard to pack, too clayey, wetness.
BgB---------- Bigbee	Severe: flooding, wetness, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
BnE:					
Blanton----------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: slope.
Luverne----------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: hard to pack, slope, too clayey.
BoB---------- Bonifay	Moderate: percs slowly, wetness.	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Fair: too sandy.
CaA---------- Cahaba	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
CmB---------- Compass	Severe: percs slowly, wetness.	Severe: seepage, wetness.	Moderate: wetness.	Severe: seepage.	Fair: thin layer, wetness.
CoB---------- Conecuh	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
CoC2---------- Conecuh	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
CwD2---------- Cowarts	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DgA---------- Dogue	Severe: percs slowly, wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: wetness.	Poor: hard to pack, too clayey.
EuA---------- Eunola	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness,	Severe: wetness.	Fair: thin layer, too clayey, wetness.
FaA---------- Faunsdale	Severe: percs slowly.	Moderate: slope, wetness.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: hard to pack, too clayey.
FuA---------- Fluvaquents	Severe: flooding, percs slowly, ponding.	Severe: flooding, ponding.	Severe: flooding, too clayey, ponding.	Severe: flooding, ponding.	Poor: too clayey, ponding.
GoA---------- Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness, too acid.	Severe: wetness.	Fair: wetness.
GrA---------- Gritney	Severe: percs slowly, wetness.	Slight---------	Severe: seepage, too clayey, wetness.	Moderate: wetness.	Poor: hard to pack, too clayey.
GrB---------- Gritney	Severe: percs slowly, wetness.	Moderate: slope.	Severe: seepage, too clayey, wetness.	Moderate: wetness.	Poor: hard to pack, too clayey.
HnB---------- Hannon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
HnC2---------- Hannon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
HoD2:					
Hannon----------	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
Maytag----------	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
HsE:					
Hannon----------	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: hard to pack, too clayey.
Sumter----------	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: hard to pack, too clayey, depth to rock.
KmA:					
Kinston----------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
KmA:					
Mooreville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
LcD:					
Lucy	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Severe: seepage.	Fair: slope, too clayey.
Luverne	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: hard to pack, too clayey.
LsB:					
Lucy	Slight	Severe: seepage.	Slight	Severe: seepage.	Fair: too clayey.
Luverne	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: hard to pack, too clayey.
Springhill	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
LuB Luverne	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: hard to pack, too clayey.
LuD2 Luverne	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: hard to pack, too clayey.
LyA Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
MaA Malbis	Severe: percs slowly, wetness.	Moderate: seepage.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
MnA Marvyn	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: hard to pack.
MnB Marvyn	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: hard to pack.
MtA Maytag	Severe: percs slowly.	Slight	Severe: too clayey.	Slight	Poor: hard to pack, too clayey.
MuB:					
Maytag	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: hard to pack, too clayey.
Hannon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: hard to pack, too clayey.
MyA Myatt	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
OcA---------- Ocilla	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: too sandy, wetness.
OkC2---------- Oktibbeha	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight---------	Poor: hard to pack, too clayey.
OkE2---------- Oktibbeha	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Moderate: slope.	Poor: hard to pack, too clayey.
OrA---------- Orangeburg	Slight---------	Moderate: seepage.	Slight---------	Slight---------	Good.
PaD---------- Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope, too clayey.
PaE---------- Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
PoA:					
Pelham----------	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
Ocilla----------	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: too sandy, wetness.
Pt---------- Pits	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
RbA---------- Red Bay	Slight---------	Moderate: seepage.	Slight---------	Slight---------	Good.
ReA---------- Riverview	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
RoB:					
Riverview---------	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
Bruno----------	Severe: flooding, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Rw---------- Riverwash	Severe: flooding, wetness, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
RyA---------- Roanoke	Severe: flooding, percs slowly, wetness.	Severe: flooding, seepage.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: hard to pack, too clayey, wetness.

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SaB---------- Searcy	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: hard to pack, too clayey.
SbB---------- Springhill	Slight---------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
SrA---------- Sucarnoochee	Severe: flooding, percs slowly, wetness.	Severe: flooding, wetness.	Severe: flooding, too clayey, wetness.	Severe: flooding, wetness.	Poor: hard to pack, too clayey, wetness.
StE:					
Sumter----------	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: hard to pack, too clayey, depth to rock.
Hannon----------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: hard to pack, slope, too clayey.
TcA---------- Toccoa	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Good.
ToB---------- Toccoa	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Good.
TpB:					
Troup----------	Slight---------	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Poor: seepage.
Alaga----------	Slight---------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
TsF:					
Troup----------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: seepage, slope.
Springhill--------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Luverne----------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: hard to pack, slope, too clayey.
UcB---------- Uchee	Severe: percs slowly, wetness.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
UcD---------- Uchee	Severe: percs slowly, wetness.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, too sandy.

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
UcE2:					
Uchee	Severe: percs slowly, slope, wetness.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Cowarts	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
UdE Udorthents	Variable	Variable	Variable	Variable	Variable.
UoC Udorthents	Variable	Variable	Variable	Variable	Variable.
UuA Udorthents	Variable	Variable	Variable	Variable	Variable.
Urban land.					
UvA:					
Urbo	Severe: flooding, percs slowly, wetness.	Severe: flooding.	Severe: flooding, too clayey, wetness.	Severe: flooding, wetness.	Poor: hard to pack, too clayey, wetness.
Una	Severe: flooding, percs slowly, ponding.	Severe: flooding, ponding.	Severe: flooding, too clayey, ponding.	Severe: flooding, ponding.	Poor: hard to pack, too clayey, ponding
Mooreville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
VaA Vaiden	Severe: percs slowly, wetness.	Slight	Severe: too clayey, wetness.	Severe: wetness.	Poor: hard to pack, too clayey.
WaB Wagram	Moderate: percs slowly.	Severe: seepage.	Slight	Severe: seepage.	Good.

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.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AlA: Altavista	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ArB: Arents	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
BaA: Bama	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
BaB: Bama	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
BeA: Bethera	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
BgB: Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
BnE:				
Blanton	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope.
Luverne	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
BoB: Bonifay	Good	Probable	Improbable: too sandy.	Fair: too sandy.
CaA: Cahaba	Good	Improbable excess fines.	Improbable: too sandy.	Fair: too clayey.
CmB: Compass	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
CoB: Conecuh	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CoC2: Conecuh	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CwD2: Cowarts	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
DgA: Dogue	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
EuA: Eunola	Fair: wetness.	Improbable: excess fines.	Improbable: too sandy.	Fair: thin layer, too clayey,
FaA: Faunsdale	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

Table 13.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
FuA---------- Fluvaquents	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
GoA---------- Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
GrA---------- Gritney	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GrB---------- Gritney	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HnB---------- Hannon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HnC2---------- Hannon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HoD2:				
Hannon----------	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Maytag----------	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HsE:				
Hannon----------	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Sumter----------	Poor: low strength, shrink-swell, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
KmA:				
Kinston----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Mooreville----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
LcD:				
Lucy----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too sandy.
Luverne----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LsB:				
Lucy----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Luverne----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Springhill----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 13.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
LuB: Luverne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LuD2: Luverne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LyA: Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
MaA: Malbis	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
MnA: Marvyn	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, thin layer.
MnB: Marvyn	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, thin layer, too sandy.
MtA: Maytag	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MuB:				
Maytag	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Hannon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MyA: Myatt	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
OcA: Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
OkC2: Oktibbeha	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
OkE2: Oktibbeha	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
OrA: Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
PaD: Pacolet	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
PaE: Pacolet	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
PoA:				
Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

Table 13.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
PoA:				
Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Pt Pits	Variable	Variable	Variable	Variable
RbA Red Bay	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
ReA Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
RoB:				
Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Bruno	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Rw Riverwash	Poor: wetness.	Probable	Probable	Poor: too sandy, wetness.
RyA Roanoke	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
SaB Searcy	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
SbB Springhill	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
SrA Sucarnoochee	Poor: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
StE:				
Sumter	Poor: low strength, shrink-swell, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
Hannon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
TcA Toccoa	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
ToB Toccoa	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
TpB:				
Troup	Good	Probable	Improbable: excess fines.	Fair: too sandy.
Alaga	Good	Probable	Improbable: too sandy.	Poor: too sandy.

Table 13.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
TsF:				
Troup	Poor: slope.	Probable	Improbable: too sandy.	Poor: slope.
Springhill	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Luverne	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
UcB Uchee	Good	Improbable: thin layer.	Improbable: excess fines.	Fair: too sandy.
UcD Uchee	Good	Improbable: thin layer.	Improbable: excess fines.	Fair: too sandy.
UcE2:				
Uchee	Fair: slope.	Improbable: thin layer.	Improbable: excess fines.	Poor: slope.
Cowarts	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
UdE Udorthents	Variable	Variable	Variable	Variable.
UoC Udorthents	Variable	Variable	Variable	Variable.
UuA:				
Udorthents	Variable	Variable	Variable	Variable.
Urban land.				
UvA:				
Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Una	Poor: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Mooreville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
VaA Vaiden	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WaB Wagram	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.

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 rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
AlA---------- Altavista	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Favorable.
ArB---------- Arents	Variable------	Variable------	Variable------	Variable------	Variable------	Variable.
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.
BeA---------- Bethera	Slight--------	Severe: hard to pack, wetness.	Flooding, percs slowly.	Flooding, percs slowly, wetness.	Percs slowly, wetness.	Percs slowly, wetness.
BgB---------- Bigbee	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, droughty.	Too sandy	Droughty.
BnE:						
Blanton------	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Slope, too sandy, soil blowing.	Slope, droughty.
Luverne------	Severe: slope.	Severe: hard to pack, piping.	Deep to water	Slope	Slope	Slope.
BoB---------- Bonifay	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Too sandy, soil blowing.	Droughty.
CaA---------- Cahaba	Severe: seepage.	Moderate: piping, thin layer.	Deep to water	Favorable	Favorable	Favorable.
CmB---------- Compass	Severe: seepage.	Severe: piping.	Favorable	Wetness, droughty.	Wetness, soil blowing.	Rooting depth, droughty.
CoB---------- Conecuh	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, droughty.	Percs slowly	Droughty.
CoC2---------- Conecuh	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, droughty.	Percs slowly	Slope, droughty.
CwD2---------- Cowarts	Severe: slope.	Severe: piping.	Deep to water	Fast intake, slope, droughty.	Percs slowly, slope.	Rooting depth, slope, droughty.
DgA---------- Dogue	Severe: seepage.	Severe: wetness.	Percs slowly	Wetness	Wetness	Percs slowly.

Table 14.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
EuA---------- Eunola	Severe: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Favorable.
FaA---------- Faunsdale	Slight--------	Severe: hard to pack.	Deep to water	Percs slowly	Erodes easily, percs slowly.	Erodes easily, percs slowly.
FuA---------- Fluvaquents	Slight--------	Severe: ponding.	Flooding, ponding.	Flooding, ponding.	Ponding	Wetness.
GoA---------- Goldsboro	Moderate: seepage.	Moderate: piping, wetness.	Percs slowly	Fast intake, wetness, droughty.	Wetness	Rooting depth, droughty.
GrA---------- Gritney	Slight--------	Moderate: hard to pack, wetness.	Percs slowly	Wetness, droughty.	Percs slowly, wetness.	Percs slowly, droughty.
GrB---------- Gritney	Moderate: slope.	Moderate: hard to pack, wetness.	Percs slowly, slope.	Slope, wetness, droughty.	Percs slowly, wetness.	Percs slowly, droughty.
HnB---------- Hannon	Slight--------	Severe: hard to pack.	Deep to water	Percs slowly, droughty.	Percs slowly	Percs slowly, droughty.
HnC2:						
Hannon-------	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, slow intake, droughty.	Percs slowly	Percs slowly, droughty.
HoD2:						
Hannon-------	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope, droughty.	Percs slowly	Percs slowly, droughty.
Maytag-------	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
HsE:						
Hannon-------	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope, droughty.	Percs slowly, slope.	Percs slowly, slope, droughty.
Sumter-------	Severe: slope.	Severe: thin layer.	Deep to water	Percs slowly, slope.	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.
KmA:						
Kinston------	Moderate: seepage.	Severe: wetness.	Flooding, wetness.	Flooding, wetness.	Wetness	Wetness.
Mooreville---	Moderate: seepage.	Severe: wetness.	Flooding	Erodes easily, flooding, wetness.	Erodes easily, wetness.	Erodes easily.
LcD:						
Lucy---------	Severe: seepage, slope.	Severe: piping.	Deep to water	Fast intake, slope, droughty.	Slope, soil blowing.	Slope, droughty.

Table 14.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
LcD:						
Luverne	Severe: slope.	Severe: hard to pack, piping.	Deep to water	Fast intake, slope.	Slope	Slope.
LsB:						
Lucy	Severe: seepage.	Severe: piping.	Deep to water	Fast intake, slope, droughty.	Soil blowing	Droughty.
Luverne	Moderate: slope.	Severe: hard to pack, piping.	Deep to water	Fast intake, slope.	Favorable	Favorable.
Springhill	Severe: seepage.	Severe: piping.	Deep to water	Fast intake, slope.	Favorable	Favorable.
LuB Luverne	Moderate: slope.	Severe: hard to pack, piping.	Deep to water	Slope	Favorable	Favorable.
LuD2 Luverne	Severe: slope.	Severe: hard to pack, piping.	Deep to water	Slope	Slope	Slope.
LyA Lynchburg	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Wetness.
MaA Malbis	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
MnA Marvyn	Moderate: seepage.	Severe: hard to pack, piping.	Deep to water	Favorable	Favorable	Favorable.
MnB Marvyn	Moderate: seepage, slope.	Severe: hard to pack, piping.	Deep to water	Fast intake, slope.	Favorable	Favorable.
MtA Maytag	Slight	Severe: hard to pack.	Deep to water	Percs slowly, slow intake.	Percs slowly	Percs slowly.
MuB:						
Maytag	Slight	Severe: hard to pack.	Deep to water	Percs slowly	Percs slowly	Percs slowly.
Hannon	Slight	Severe: hard to pack.	Deep to water	Percs slowly, droughty.	Percs slowly	Percs slowly, droughty.
MyA Myatt	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness	Wetness	Wetness.
OcA Ocilla	Severe: seepage.	Severe: piping, wetness.	Favorable	Fast intake, wetness, droughty.	Wetness, soil blowing.	Droughty.
OkC2 Oktibbeha	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.

Table 14.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
OkE2---------- Oktibbeha	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
OrA---------- Orangeburg	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable	Soil blowing	Favorable.
PaD---------- Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
PaE---------- Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
PoA:						
Pelham-------	Severe: seepage.	Severe: piping, wetness.	Favorable	Fast intake, wetness.	Wetness, soil blowing.	Wetness.
Ocilla-------	Severe: seepage.	Severe: piping, wetness.	Favorable	Fast intake, wetness, droughty.	Wetness, soil blowing.	Droughty.
Pt---------- Pits	Variable------	Variable------	Variable------	Variable------	Variable------	Variable.
RbA---------- Red Bay	Moderate: seepage.	Slight--------	Deep to water	Favorable	Favorable	Favorable.
ReA---------- Riverview	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
RoB:						
Riverview----	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
Bruno--------	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty	Too sandy	Droughty.
Rw---------- Riverwash	Severe: seepage.	Severe: seepage, piping.	Variable------	Fast intake, droughty.	Too sandy	Droughty.
RyA---------- Roanoke	Severe: seepage.	Severe: wetness.	Flooding, percs slowly.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly, wetness.
SaB---------- Searcy	Moderate: slope.	Moderate: hard to pack, wetness.	Percs slowly, slope.	Slope, wetness.	Wetness	Percs slowly.
SbB---------- Springhill	Severe: seepage.	Severe: piping.	Deep to water	Slope	Favorable	Favorable.
SrA---------- Sucarnoochee	Slight--------	Severe: hard to pack, wetness.	Flooding, percs slowly.	Percs slowly, slow intake, wetness.	Percs slowly, wetness.	Percs slowly, wetness.
StE:						
Sumter-------	Severe: slope.	Severe: thin layer.	Deep to water	Percs slowly, slope.	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.

Table 14.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
StE:						
Hannon	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope, droughty.	Percs slowly, slope.	Percs slowly, slope, droughty.
TcA Toccoa	Severe: seepage.	Severe: piping.	Flooding	Flooding	Favorable	Favorable.
ToB Toccoa	Severe: seepage.	Severe: piping.	Flooding	Flooding	Favorable	Favorable.
TpB:						
Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, droughty.	Soil blowing	Droughty.
Alaga	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, droughty.	Too sandy, soil blowing	Droughty.
TsF:						
Troup	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Slope, too sandy, soil blowing.	Slope, droughty.
Springhill	Severe: seepage, slope.	Severe: piping.	Deep to water	Fast intake, slope.	Slope	Slope.
Luverne	Severe: slope.	Severe: hard to pack, piping.	Deep to water	Slope	Slope	Slope.
UcB Uchee	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Too sandy	Droughty.
UcD Uchee	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Slope, too sandy.	Slope, droughty.
UcE2:						
Uchee	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Slope, too sandy.	Slope, droughty.
Cowarts	Severe: slope.	Severe: piping.	Deep to water	Slope, droughty.	Percs slowly, slope.	Rooting depth, slope, droughty.
UdE Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
UoC Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
UuA:						
Udorthents	Variable	Variable	Variable	Variable	Variable	Variable.
Urban land.						

Table 14.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
UvA:						
Urbo	Slight	Severe: wetness.	Flooding, percs slowly.	Percs slowly, wetness.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly, wetness.
Una	Slight	Severe: ponding.	Flooding, percs slowly, ponding.	Percs slowly, ponding.	Percs slowly, ponding.	Percs slowly, wetness.
Mooreville	Moderate: seepage.	Severe: wetness.	Flooding	Erodes easily, flooding, wetness.	Erodes easily, wetness.	Erodes easily.
VaA Vaiden	Slight	Severe: hard to pack.	Percs slowly	Slow intake, wetness.	Percs slowly, wetness.	Percs slowly, wetness.
WaB Wagram	Severe: seepage.	Slight	Deep to water	Fast intake, soil blowing, droughty.	Soil blowing	Droughty.

Table 15.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
AlA---------- Altavista	0-7	Silt loam------	CL-ML, ML, SM, SC-SM	A-4	95-100	90-100	65-99	35-60	0-23	NP-7
	7-80	Clay loam, sandy clay loam, loam.	CL-ML, SC, CL, SC-SM	A-6, A-4, A-7	95-100	95-100	60-99	45-75	20-45	5-28
ArB---------- Arents	0-80	Variable-------	Variable	Variable	---	---	---	---	---	---
BaA---------- Bama	0-8	Fine sandy loam	CL-ML, SM, SC, SC-SM	A-4	95-100	85-100	70-95	40-70	0-30	NP-10
	8-36	Loam, sandy clay loam, clay loam.	SC, CL-ML, SC-SM, SM	A-4, A-6	90-100	85-100	80-95	36-70	15-35	2-15
	36-80	Loam, sandy clay loam, clay loam.	CL, SC	A-4, A-6	85-100	80-100	80-95	40-70	20-40	8-18
BaB---------- Bama	0-5	Fine sandy loam	SC, CL-ML, SC-SM, SM	A-4	95-100	85-100	70-95	40-70	0-30	NP-10
	5-30	Loam, sandy clay loam, clay loam.	CL-ML, SM, SC, SC-SM	A-4, A-6	90-100	85-100	80-95	36-70	15-35	2-15
	30-65	Loam, sandy clay loam, clay loam.	CL, SC	A-4, A-6	85-100	80-100	80-95	40-70	20-40	8-18
BeA---------- Bethera	0-2	Clay loam------	CH, CL	A-6, A-7	100	95-100	90-100	70-80	30-55	12-26
	2-60	Clay, clay loam, sandy clay.	CH, CL, ML, MH	A-6, A-7	100	98-100	93-100	55-95	37-55	12-30
BgB---------- Bigbee	0-11	Loamy sand-----	SM	A-2-4	100	95-100	60-90	15-30	0-14	NP
	11-64	Loamy sand, sand.	SM, SP-SM	A-2-4	100	95-100	60-90	15-30	0-14	NP
	64-84	Sand, fine sand	SM, SP-SM	A-2-4, A-3	85-100	85-100	50-75	5-20	0-14	NP
BnE:										
Blanton------	0-6	Loamy sand-----	SM	A-2-4	100	95-100	85-100	13-25	0-14	NP
	6-68	Loamy sand, loamy coarse sand.	SM	A-2-4	100	95-100	65-96	13-30	0-25	NP-3
	68-80	Sandy clay loam, sandy loam, sandy clay.	SC-SM, SC, SM	A-2-4, A-6, A-2-6, A-4	100	95-100	69-100	25-50	12-45	3-22
Luverne------	0-4	Sandy loam-----	ML, SM	A-2, A-4	87-100	84-100	80-100	30-60	0-20	NP
	4-27	Clay loam, sandy clay, clay.	MH, ML	A-4, A-5, A-7	95-100	90-100	85-100	50-95	38-70	8-30
	27-40	Clay loam, sandy clay loam.	MH, ML, SM	A-4, A-7, A-5	95-100	85-100	85-100	36-76	32-56	2-14
	40-65	Stratified loamy sand to sandy clay loam.	ML, SM	A-4, A-2, A-6, A-7	90-100	85-100	70-100	25-65	28-49	3-16

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
BoB---------- Bonifay	0-7	Loamy fine sand	SM	A-2-4	98-100	98-100	65-95	13-20	0-14	NP
	7-58	Loamy sand, sandy clay loam, fine sandy loam.	SC-SM, SC, SM	A-2-4, A-2-6, A-6, A-4	95-100	90-100	63-95	23-50	0-30	NP-12
	58-84	Sandy clay loam, sandy clay.	SC, SC-SM	A-4, A-6, A-6, A-7	95-100	90-100	60-95	30-50	25-45	5-22
CaA---------- Cahaba	0-12	Sandy loam-----	SM	A-2-4, A-4	95-100	95-100	65-90	30-45	0-14	NP
	12-48	Sandy clay loam, loam, clay loam.	CL, SC	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	48-80	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	0-14	NP
CmB---------- Compass	0-11	Loamy sand-----	SM	A-2-4	95-100	95-100	75-95	13-25	0-14	NP
	11-31	Sandy loam, fine sandy loam.	SM	A-2-4	95-100	95-100	75-95	20-30	0-10	NP-3
	31-65	Sandy loam, fine sandy loam, sandy clay loam.	SC, SC-SM, SM	A-2-4, A-6, A-2-6, A-4	100	100	90-100	20-50	0-30	NP-15
CoB---------- Conecuh	0-3	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	95-100	95-100	70-100	40-70	0-20	NP-5
	3-47	Clay loam, clay, silty clay loam.	CL, CH, MH	A-6, A-7	95-100	95-100	85-100	70-95	35-60	10-30
	47-60	Clay, silty clay.	MH, CH	A-7	95-100	95-100	90-100	80-98	45-70	15-45
CoC2---------- Conecuh	0-3	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	95-100	95-100	70-100	40-70	0-20	NP-5
	3-52	Clay loam, clay, silty clay loam.	CH, ML, CL, MH	A-6, A-7	95-100	95-100	85-100	70-95	35-60	10-30
	52-72	Clay, silty clay.	CH, ML, MH	A-7	95-100	95-100	90-100	80-98	45-70	15-45
CwD2---------- Cowarts	0-10	Loamy sand-----	SM	A-2	90-100	85-100	50-80	13-30	0-14	NP
	10-39	Fine sandy loam, sandy loam, sandy clay loam.	SC-SM, SC, SM	A-2, A-6, A-4	95-100	90-100	60-95	23-45	20-40	NP-15
	39-60	Sandy clay loam, sandy clay, clay loam.	SC, SM	A-2-6, A-7, A-6	95-100	90-100	60-95	25-50	20-54	5-25
DgA---------- Dogue	0-6	Fine sandy loam	SC, SC-SM, SM	A-2, A-4	95-100	75-100	50-100	20-50	0-25	NP-10
	6-44	Clay loam, clay, sandy clay.	CH, CL, SC	A-6, A-7	95-100	75-100	65-100	40-90	35-60	16-40
	44-72	Stratified sand to sandy clay loam.	SC, SC-SM, SP-SM, SM	A-1, A-2, A-4	80-100	60-100	35-100	10-40	0-30	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
EuA---------- Eunola	0-10	Fine sandy loam	SM	A-2, A-4	100	98-100	60-85	30-50	0-14	NP
	10-14	Sandy clay loam, clay loam, fine sandy loam.	CL, SM, SC, SC-SM	A-2, A-4, A-6	100	90-100	75-95	30-60	0-36	NP-15
	14-52	Sandy clay loam, sandy clay, clay loam.	ML, CL, SC, SM	A-4, A-7, A-6	100	98-100	80-95	36-60	22-50	3-26
	52-60	Sandy loam, sandy clay loam.	SC, SM, SC-SM	A-2, A-4	100	98-100	60-70	30-40	0-30	NP-10
	60-72	Sand, loamy sand, fine sand.	SM, SP-SM	A-2, A-3	100	98-100	50-75	5-30	0-14	NP
FaA---------- Faunsdale	0-9	Clay loam------	CH, CL	A-7	98-100	92-100	88-100	80-95	44-56	23-33
	9-17	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	85-95	51-76	30-49
	17-45	Clay loam, silty clay loam, silty clay.	CH	A-7	98-100	92-100	88-100	80-95	51-76	30-49
	45-80	Silty clay, clay.	CH	A-7	96-100	92-100	88-100	85-98	56-76	33-49
FuA---------- Fluvaquents	0-6	Sandy loam-----	CL-ML, ML, SM	A-2, A-4	100	90-100	60-90	30-60	0-25	NP-7
	6-80	Stratified sandy loam to clay.	CL, ML	A-4, A-6, A-7	100	90-100	75-100	60-95	20-45	8-22
GoA---------- Goldsboro	0-11	Loamy fine sand	SM	A-2	95-100	95-100	50-95	13-30	10-20	NP
	11-31	Sandy clay loam, sandy loam.	CL, SC-SM, CL-ML, SC	A-2, A-4, A-6	98-100	95-100	60-100	25-55	20-37	4-18
	31-72	Sandy clay loam, clay loam, sandy clay.	CH, SC, CL, CL-ML	A-4, A-7-6, A-6	95-100	90-100	65-95	36-70	25-55	6-32
GrA---------- Gritney	0-5	Loamy fine sand	SM, SP-SM	A-2-4	90-100	85-100	75-99	10-20	15-20	NP
	5-65	Clay, sandy clay, clay loam	CH, SC, CL	A-7	95-100	90-100	80-100	45-80	45-70	22-40
	65-80	Stratified loamy sand to sandy clay loam	CL, ML, SM, SC	A-1, A-2, A-6, A-4	70-100	55-100	30-90	20-60	20-40	NP-25
GrB---------- Gritney	0-6	Fine sandy loam	SC, ML, SC-SM, SM	A-2, A-4	90-100	80-100	60-95	30-90	20-30	NP-8
	6-45	Clay, sandy clay, clay loam.	CH, CL, SC	A-7	95-100	90-100	80-100	45-80	45-70	22-40
	45-72	Stratified loamy sand to sandy clay loam.	ML, SC, CL, SM	A-2, A-1, A-4, A-6	70-100	55-100	30-90	20-60	20-40	NP-25

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid Limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								*Pct*	
HnB---------- Hannon	0-3	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	3-18	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	18-30	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	30-45	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45
	45-65	Stratified sandy loam to clay.	CH, CL	A-6, A-7	100	90-100	80-90	75-85	35-55	15-30
HnC2---------- Hannon	0-2	Clay----------	CH, CL	A-7	100	100	90-100	90-100	42-64	30-40
	2-10	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	10-25	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	25-48	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45
	48-65	Stratified sandy loam to clay.	CH, CL	A-6, A-7	100	90-100	80-90	75-85	35-55	15-30
HoD2:										
Hannon-------	0-4	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	4-12	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	12-28	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	28-60	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45
	60-72	Stratified sandy loam to clay.	CH, CL	A-6, A-7	100	90-100	80-90	75-85	35-55	15-30
Maytag-------	0-10	Silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	98-100	95-100	90-100	75-90	20-45	3-25
	10-45	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	85-98	60-95	30-60
	45-60	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	75-98	60-95	30-60
HsE:										
Hannon-------	0-4	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	4-14	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	14-25	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	25-65	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
HsE:										
Sumter-------	0-14	Silty clay loam	CL	A-6, A-7	90-100	85-100	80-98	75-90	35-50	16-25
	14-23	Silty clay, clay, silty clay loam.	CH, CL	A-6, A-7	85-100	78-98	75-95	75-95	35-55	16-32
	23-34	Channery silty clay loam, silty clay loam, silty clay.	CH, CL	A-6, A-7	80-100	65-98	60-95	55-95	35-55	16-32
	34-72	Weathered bedrock.	---	---	---	---	---	---	---	---
KmA:										
Kinston------	0-7	Fine sandy loam	SC, SC-SM, SM	A-2, A-4	100	98-100	55-100	25-49	20-35	NP-10
	7-58	Loam, clay loam, sandy clay loam.	CL	A-4, A-6, A-7	100	95-100	75-100	60-95	20-45	8-22
	58-80	Variable-------			---	---	---	---	---	---
Mooreville---	0-10	Fine sandy loam	CL-ML, CL, SC, SC-SM	A-4	100	100	80-100	40-85	20-30	5-10
	10-52	Sandy clay loam, clay loam, loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
	52-80	Loam, sandy clay loam, clay loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
LcD:										
Lucy---------	0-7	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	0-14	NP
	7-31	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	0-14	NP
	31-41	Sandy clay loam, fine sandy loam.	SC, SC-SM, SM	A-2, A-4, A-6	97-100	95-100	55-95	15-50	10-30	NP-15
	41-60	Sandy clay loam, clay loam, sandy clay.	SC, SM, SC-SM	A-2, A-6, A-4	100	95-100	60-95	20-50	20-40	3-20
Luverne------	0-9	Loamy fine sand	SM	A-2, A-4	85-100	80-95	60-90	19-45	0-14	NP
	9-45	Clay loam, sandy clay, clay.	MH, ML	A-4, A-7, A-5	95-100	90-100	85-100	50-95	38-70	8-30
	45-60	Stratified loamy sand to sandy clay loam.	ML, SM	A-4, A-2, A-6, A-7	90-100	85-100	70-100	25-65	28-49	3-16
LsB:										
Lucy---------	0-5	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	0-14	NP
	5-39	Loamy fine sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	0-14	NP
	39-49	Sandy loam, fine sandy loam, sandy clay loam.	SC, SC-SM, SM	A-2, A-6, A-4	97-100	95-100	55-95	15-50	10-30	NP-15
	49-72	Sandy clay loam, clay loam, sandy clay.	SC, SM, SC-SM	A-2, A-4, A-6	100	95-100	60-95	20-50	20-40	3-20

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
LsB:										
Luverne------	0-9	Loamy sand-----	SM	A-2, A-4	85-100	80-95	60-90	19-45	0-14	NP
	9-45	Clay loam, sandy clay, clay.	MH, ML	A-4, A-7, A-5	95-100	90-100	85-100	50-95	38-70	8-30
	45-50	Clay loam, sandy clay loam.	MH, ML, SM	A-5, A-4, A-7	95-100	85-100	85-100	36-76	32-56	2-14
	50-65	Stratified loamy sand to sandy clay loam.	ML, SM	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
Springhill---	0-7	Loamy sand-----	SM	A-2	98-100	95-100	60-87	14-28	0-14	NP
	7-14	Sandy loam, fine sandy loam.	SM	A-2	98-100	95-100	70-96	25-35	0-30	NP-4
	14-56	Sandy loam, sandy clay loam.	CL, SC, SC-SM	A-4, A-6	98-100	95-100	70-96	40-65	22-46	8-21
	56-72	Loamy sand, sandy loam.	SC-SM, SM	A-2, A-4	98-100	95-100	70-96	15-45	0-30	3-16
LuB---------- Luverne	0-4	Sandy loam-----	ML, SM	A-2, A-4	87-100	84-100	80-100	30-60	0-20	NP
	4-32	Clay loam, sandy clay, clay.	MH, ML	A-4, A-5, A-7	95-100	90-100	85-100	50-95	38-70	8-30
	32-45	Clay loam, sandy clay loam.	MH, ML, SM	A-4, A-5, A-7	95-100	85-100	85-100	36-76	32-56	2-14
	45-72	Stratified loamy sand to sandy clay loam.	ML, SM	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
LuD2---------- Luverne	0-3	Sandy loam-----	ML, SM	A-2, A-4	87-100	84-100	80-100	30-60	0-20	NP
	3-36	Clay loam, sandy clay, clay.	MH, ML	A-4, A-7, A-5	95-100	90-100	85-100	50-95	38-70	8-30
	36-48	Clay loam, sandy clay loam.	MH, ML, SM	A-4, A-5, A-7	95-100	85-100	85-100	36-76	32-56	2-14
	48-72	Stratified loamy sand to sandy clay loam.	ML, SM	A-4, A-6, A-2, A-7	90-100	85-100	70-100	25-65	28-49	3-16
LyA---------- Lynchburg	0-15	Fine sandy loam	ML, SM	A-2, A-4	92-100	90-100	75-100	25-65	0-30	NP-7
	15-61	Sandy clay loam, sandy loam, clay loam.	CL, SC-SM, CL-ML, SC	A-2, A-4, A-6	92-100	90-100	70-100	25-67	15-40	4-18
	61-80	Sandy clay loam, sandy clay, clay loam.	CL-ML, SC, CL, SC-SM		95-100	92-100	70-100	25-73	15-40	4-20

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
MaA---------- Malbis	0-19	Fine sandy loam	ML, SM	A-4	100	97-100	91-97	40-62	0-30	NP-5
	19-35	Loam, sandy clay loam, clay loam.	CL, CL-ML	A-4, A-6	99-100	95-100	80-100	55-70	21-35	5-11
	35-64	Sandy clay loam, clay loam, loam.	CL, ML	A-4, A-6, A-7	98-100	96-100	90-100	56-80	29-49	4-15
	64-80	Sandy clay loam, clay loam.	CL, ML	A-5, A-6, A-4, A-7	98-100	96-100	90-100	56-80	30-49	4-15
MnA---------- Marvyn	0-7	Sandy loam-----	SC-SM, SM	A-2, A-4	95-100	90-100	70-85	20-40	0-20	NP-5
	7-26	Sandy clay loam, sandy loam.	ML, SM	A-2, A-4, A-7, A-6	95-100	90-100	60-80	30-55	24-45	3-15
	26-47	Sandy clay loam, sandy clay.	MH, ML, SM	A-5, A-4, A-7	95-100	90-100	65-80	36-60	38-59	4-19
	47-65	Loamy sand, sandy loam, sandy clay loam.	ML, SM	A-2, A-1, A-4	95-100	90-100	45-85	20-55	0-40	NP-10
MnB---------- Marvyn	0-9	Loamy sand-----	SM	A-2	95-100	90-100	50-80	13-30	0-14	NP
	9-38	Sandy clay loam, sandy loam.	ML, SM	A-4, A-6, A-2, A-7	95-100	90-100	60-80	30-55	24-45	3-15
	38-50	Sandy clay loam, sandy clay.	MH, ML, SM	A-4, A-5, A-7	95-100	90-100	65-80	36-60	38-59	4-19
	50-62	Loamy sand, sandy loam, sandy clay loam.	ML, SM	A-1, A-4, A-2	95-100	90-100	45-85	20-55	0-40	NP-10
MtA---------- Maytag	0-5	Silty clay-----	CH, MH	A-7	98-100	95-100	90-100	85-98	50-70	20-35
	5-48	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	85-98	60-95	30-60
	48-65	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	75-98	60-95	30-60
MuB:										
Maytag-------	0-4	Clay loam------	CL-ML, CL, ML	A-6, A-4, A-7	98-100	95-100	90-100	75-90	20-45	3-25
	4-44	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	85-98	60-95	30-60
	44-60	Silty clay, clay, silty clay loam.	CH, MH	A-7	98-100	95-100	90-100	75-98	60-95	30-60

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid Limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								*Pct*	
MuB:										
Hannon-------	0-7	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	7-16	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	16-26	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	26-59	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45
	59-80	Stratified sandy loam to clay.	CH, CL	A-6, A-7	100	90-100	80-90	75-85	35-55	15-30
MyA---------- Myatt	0-6	Loam----------	CL-ML, ML	A-4	95-100	95-100	70-100	60-90	0-25	NP-5
	6-55	Loam, sandy clay loam, clay loam.	CL, SM, ML, SC	A-4	95-100	95-100	80-100	40-80	0-30	NP-10
	55-65	Gravelly sandy loam, sandy loam, sandy clay loam, clay loam.	CL-ML, SC, CL, SC-SM	A-2, A-4, A-6	75-100	60-90	60-80	30-70	15-40	5-20
OcA---------- Ocilla	0-6	Loamy fine sand	SM, SP-SM	A-2, A-3	100	95-100	75-100	8-35	0-14	NP
	6-29	Loamy fine sand	SM, SP-SM	A-2, A-3	100	95-100	75-100	8-35	0-14	NP
	29-60	Sandy loam, sandy clay loam, fine sandy loam.	CL, ML, SM, SC	A-2, A-6, A-4	100	95-100	80-100	20-55	20-40	NP-18
	60-80	Sandy clay loam, sandy clay, sandy loam.	CL, SC	A-6, A-4, A-7	100	95-100	80-100	36-60	20-45	7-20
OkC2---------- Oktibbeha	0-4	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	4-14	Clay----------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	14-38	Clay----------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	38-65	Clay, silty clay.	CL	A-7	100	100	90-100	90-100	42-65	30-45
OkE2---------- Oktibbeha	0-3	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	3-18	Clay----------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	18-45	Clay----------	CH	A-7	100	100	95-100	95-100	55-75	35-50
	45-72	Clay, silty clay.	CL	A-7	100	100	90-100	90-100	42-65	30-45
OrA---------- Orangeburg	0-6	Sandy loam-----	SM	A-2	98-100	95-100	75-95	20-35	0-14	NP
	6-80	Sandy clay loam, sandy loam.	SC, CL, SC-SM, SM	A-4, A-6	98-100	95-100	71-96	38-58	22-40	3-19

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
PaD---------- Pacolet	0-7	Sandy loam-----	SC-SM, SM	A-1-b, A-2, A-4	85-100	80-100	42-90	16-42	0-28	NP-7
	7-30	Sandy clay, clay loam, clay.	MH, CL, ML	A-6, A-7	80-100	80-100	60-100	51-75	38-65	11-33
	30-38	Clay loam, sandy clay loam, sandy loam.	CL-ML, CL, SC, SC-SM	A-2, A-6, A-4	80-100	70-100	60-80	30-60	20-35	5-15
	38-60	Sandy loam, fine sandy loam, loam.	SC-SM, SM	A-2-4, A-4	80-100	70-100	60-90	25-50	0-28	NP-6
PaE---------- Pacolet	0-4	Sandy loam-----	SC-SM, SM	A-1-b, A-4, A-2	85-100	80-100	42-90	16-42	0-28	NP-7
	4-28	Sandy clay, clay loam, clay.	CL, MH, ML	A-6, A-7	80-100	80-100	60-100	51-75	38-65	11-33
	28-36	Clay loam, sandy clay loam, sandy loam.	CL-ML, SC, CL, SC-SM	A-2, A-4, A-6	80-100	70-100	60-80	30-60	20-35	5-15
	36-72	Sandy loam, fine sandy loam, loam.	SC-SM, SM	A-2-4, A-4	80-100	70-100	60-90	25-50	0-28	NP-6
PoA:										
Pelham-------	0-26	Loamy fine sand	SM	A-2	100	95-100	75-100	15-30	0-14	NP
	26-68	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, SM	A-2, A-4, A-6	100	95-100	65-100	27-50	15-30	2-12
	68-80	Sandy clay loam, sandy loam, sandy clay.	ML, SC, CL, SM	A-4, A-6, A-2, A-7	100	95-100	65-100	27-65	20-45	3-20
Ocilla-------	0-24	Loamy fine sand	SM, SP-SM	A-2, A-3	100	95-100	75-100	8-35	0-14	NP
	24-60	Sandy loam, sandy clay loam, fine sandy loam.	CL, SM, ML, SC	A-2, A-6, A-4	100	95-100	80-100	20-55	20-40	NP-18
	60-70	Sandy clay loam, sandy clay, sandy loam.	CL, SC	A-4, A-6, A-7	100	95-100	80-100	36-60	20-45	7-20
Pt---------- Pits	0-60	Variable-------	Variable	Variable	---	---	---	---	---	---
RbA---------- Red Bay	0-9	Sandy loam-----	SC-SM, SM	A-2, A-4	100	95-100	60-85	15-45	0-20	NP-4
	9-15	Sandy loam, sandy clay loam.	SC, SC-SM, SM	A-2, A-4	100	95-100	60-85	15-50	0-35	NP-10
	15-52	Sandy clay loam	SC, SC-SM	A-2, A-6, A-4	100	95-100	70-90	24-50	18-40	4-16
	52-80	Sandy clay loam, sandy clay.	CL, SC	A-6, A-4, A-7	100	98-100	70-97	40-65	24-46	8-21

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid Limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								*Pct*	
ReA---------- Riverview	0-11	Silt loam------	CL, ML, CL-ML	A-4, A-6	100	100	90-100	60-80	15-30	3-14
	11-48	Sandy clay loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	100	100	90-100	60-95	20-40	3-20
	48-72	Loamy fine sand, sandy loam, sand.	SC-SM, SM	A-2, A-4	100	100	50-95	15-45	0-20	NP-7
RoB:										
Riverview----	0-3	Loam----------	CL-ML, CL, ML	A-4, A-6	100	100	90-100	60-80	15-30	3-14
	3-30	Sandy clay loam, silty clay loam, loam.	CL, CL-ML, ML	A-4, A-6	100	100	90-100	60-95	20-40	3-20
	30-60	Loamy fine sand, sandy loam, sand.	SC-SM, SM	A-2, A-4	100	100	50-95	15-45	0-20	NP-7
Bruno--------	0-10	Fine sandy loam	ML, SM	A-2, A-4	100	100	60-85	30-60	0-25	NP-3
	10-32	Sand, loamy sand, loamy fine sand.	SM, SP-SM	A-2	100	100	60-80	10-30	0-14	NP
	32-60	Sand----------	SM, SP-SM	A-2, A-3	100	100	50-70	5-20	0-14	NP
Rw---------- Riverwash	0-80	Variable-------	Variable	Variable	---	---	---	---	---	---
RyA---------- Roanoke	0-5	Silt loam------	CL-ML, CL, SC, SC-SM	A-4, A-6	95-100	85-100	60-100	35-90	20-35	5-16
	5-12	Clay loam, silty clay loam.	CL	A-6, A-7	95-100	85-100	80-100	80-95	35-45	14-20
	12-72	Clay, silty clay, clay loam.	CH, CL	A-7	90-100	85-100	85-100	65-95	45-70	22-40
SaB---------- Searcy	0-14	Fine sandy loam	CL-ML, ML, SM	A-2, A-4	95-100	95-100	80-95	30-75	0-30	NP-7
	14-20	Clay loam, sandy clay loam, clay.	CL, SC	A-4, A-6	95-100	95-100	80-100	36-70	30-40	11-17
	20-65	Clay, sandy clay.	CH, SC	A-7	95-100	95-100	90-100	60-75	41-50	15-22
SbB---------- Springhill	0-6	Sandy loam-----	SM	A-2	98-100	95-100	75-85	20-35	0-14	NP
	6-60	Sandy loam, sandy clay loam.	CL, SC, SC-SM	A-4, A-6	98-100	95-100	70-96	40-65	22-46	8-21
	60-80	Loamy sand, sandy loam.	SC-SM, SM	A-2, A-4	98-100	95-100	70-96	15-45	0-30	3-16
SrA---------- Sucarnoochee	0-15	Clay----------	CH, CL, MH	A-7	98-100	95-100	90-100	85-95	40-65	15-35
	15-34	Silty clay, clay.	CH, MH, CL	A-7	98-100	95-100	90-100	85-98	45-70	20-40
	34-65	Silty clay, clay.	CH, MH	A-7	98-100	95-100	90-100	85-98	50-80	25-45

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
StE:										
Sumter-------	0-12	Silt loam------	CL, ML, CL-ML	A-4, A-6	100	95-100	85-95	60-90	20-40	3-20
	12-24	Silty clay, clay, silty clay loam.	CH, CL	A-6, A-7	85-100	78-98	75-95	75-95	35-55	16-32
	24-35	Channery silty clay loam, silty clay loam, silty clay.	CH, CL	A-6, A-7	80-100	65-98	60-95	55-95	35-55	16-32
	35-72	Weathered bedrock.	---	---	---	---	---	---	---	---
Hannon-------	0-3	Clay loam------	CL	A-6, A-7	100	100	90-100	75-95	32-50	20-30
	3-14	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	14-28	Clay, silty clay.	CH	A-7	100	100	95-100	90-100	55-75	35-50
	28-72	Clay loam, clay, silty clay.	CH, CL	A-7	100	100	90-100	85-95	42-65	30-45
TcA---------- Toccoa	0-9	Fine sandy loam	ML, SM	A-2, A-4	95-100	95-100	50-85	30-55	0-30	NP-4
	9-12	Fine sandy loam	ML, SM	A-2, A-4	95-100	95-100	50-85	30-55	0-30	NP-4
	12-80	Sandy loam, loam.	ML, SM	A-2, A-4	95-100	90-100	60-100	30-55	0-30	NP-4
ToB---------- Toccoa	0-12	Fine sandy loam	ML, SM	A-2, A-4	95-100	95-100	50-85	30-55	0-30	NP-4
	12-72	Fine sandy loam, loam, loamy fine sand.	ML, SM	A-2, A-4	95-100	90-100	60-100	30-55	0-30	NP-4
TpB:										
Troup--------	0-10	Loamy fine sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	0-14	NP
	10-57	Loamy fine sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	0-14	NP
	57-90	Sandy clay loam, sandy loam, fine sandy loam.	CL, SC-SM, CL-ML, SC	A-2, A-6, A-4	95-100	90-100	60-90	24-55	19-40	4-20
Alaga--------	0-8	Loamy fine sand	SM, SP-SM, SW-SM	A-1-b, A-2	100	100	40-80	10-35	0-25	NP-4
	8-90	Loamy sand, loamy fine sand, fine sand.	SM, SW-SM, SP-SM	A-2	100	100	50-85	10-35	0-25	NP-4
TsF:										
Troup--------	0-4	Loamy sand-----	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	0-14	NP
	4-55	Loamy sand-----	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	0-14	NP
	55-75	Sandy clay loam, sandy loam, fine sandy loam.	CL-ML, SC, CL, SC-SM	A-2, A-6, A-4	95-100	90-100	60-90	24-55	19-40	4-20

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
TsF:										
Springhill---	0-4	Sandy loam-----	SM	A-2	98-100	95-100	75-85	20-35	0-14	NP
	4-12	Sandy loam, fine sandy loam.	SM	A-2	98-100	95-100	70-96	25-35	0-30	NP-4
	12-50	Sandy loam, sandy clay loam.	CL, SC, SC-SM	A-4, A-6	98-100	95-100	70-96	40-65	22-46	8-21
	50-65	Loamy sand, sandy loam.	SC-SM, SM	A-2, A-4	98-100	95-100	70-96	15-45	0-30	3-16
Luverne------	0-7	Fine sandy loam	ML, SM	A-2, A-4	87-100	84-100	80-100	30-60	0-20	NP
	7-42	Clay loam, sandy clay, clay.	MH, ML	A-4, A-5, A-7	95-100	90-100	85-100	50-95	38-70	8-30
	42-50	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-7, A-5	95-100	85-100	85-100	36-76	32-56	2-14
	50-65	Stratified loamy sand to sandy clay loam.	ML, SM	A-2, A-7, A-4, A-6	90-100	85-100	70-100	25-65	28-49	3-16
UcB---------- Uchee	0-8	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	8-28	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	28-37	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	90-100	80-100	50-80	25-50	20-40	6-20
	37-46	Sandy clay loam, sandy clay, clay.	CH, CL, SC	A-7	90-100	80-100	65-90	40-70	41-70	18-38
	46-65	Sandy loam, sandy clay loam, sandy clay.	CH, SC, CL	A-2-6, A-6, A-7	85-100	80-100	50-80	30-65	35-65	15-35
UcD---------- Uchee	0-4	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	4-31	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	31-46	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-6, A-4	90-100	80-100	50-80	25-50	20-40	6-20
	46-51	Sandy clay loam, sandy clay, clay.	CH, SC, CL	A-7	90-100	80-100	65-90	40-70	41-70	18-38
	51-65	Sandy loam, sandy clay loam, sandy clay.	CH, CL, SC	A-6, A-2-6, A-7	85-100	80-100	50-80	30-65	35-65	15-35
UcE2:										
Uchee--------	0-7	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	7-22	Loamy sand-----	SM	A-1-b, A-2	90-100	80-100	40-70	15-30	0-14	NP
	22-37	Sandy loam, sandy clay loam.	SC, SC-SM	A-4, A-2, A-6	90-100	80-100	50-80	25-50	20-40	6-20
	37-42	Sandy clay loam, sandy clay, clay.	CH, SC, CL	A-7	90-100	80-100	65-90	40-70	41-70	18-38
	42-72	Sandy loam, sandy clay loam, sandy clay.	CH, SC, CL	A-6, A-2-6, A-7	85-100	80-100	50-80	30-65	35-65	15-35

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid Limit	Plasticity index
	In								*Pct*	
UcE2:										
Cowarts------	0-7	Sandy loam-----	SC-SM, SM	A-2, A-4	95-100	90-100	75-90	20-40	0-20	NP-5
	7-19	Fine sandy loam, sandy loam, sandy clay loam.	SC, SC-SM, SM	A-2, A-4, A-6	95-100	90-100	60-95	23-45	20-40	NP-15
	19-26	Sandy clay loam, sandy clay, clay loam.	SC, SM	A-2-6, A-6, A-7	95-100	90-100	60-95	25-50	20-54	5-25
	26-60	Sandy loam, sandy clay loam, clay loam.	CL, CL-ML, SC-SM, SC	A-2, A-4, A-7, A-6	85-100	80-100	60-95	25-58	25-53	5-20
UdE---------- Udorthents	0-80	Variable-------	Variable	Variable	---	---	---	---	---	---
UoC---------- Udorthents	0-80	Variable-------	Variable	Variable	---	---	---	---	---	---
UuA:										
Udorthents---	0-80	Variable-------	Variable	Variable	---	---	---	---	---	---
Urban land.										
UvA:										
Urbo---------	0-6	Silty clay loam	CL	A-6	100	100	95-100	95-100	30-40	15-25
	6-80	Silty clay, clay loam, silty clay loam.	CH, CL	A-7	100	100	95-100	80-98	44-62	20-36
Una----------	0-4	Silty clay loam	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
	4-80	Clay, silty clay loam, silty clay.	CH, CL	A-7	100	94-100	90-100	75-95	41-65	20-40
Mooreville---	0-4	Loam----------	CL-ML, CL, SC, SC-SM	A-4	100	100	80-100	40-85	20-30	5-10
	4-55	Sandy clay loam, clay loam, loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
	55-88	Loam, sandy clay loam, clay loam.	CL, SC	A-6, A-7	100	100	80-95	45-80	28-50	15-30
VaA---------- Vaiden	0-7	Silty clay loam	CH, CL	A-6, A-7	100	100	90-100	75-95	32-50	12-30
	7-48	Clay----------	CH, MH	A-7	100	100	95-100	85-100	50-90	30-50
	48-70	Clay, silty clay.	CH, MH	A-7	95-100	95-100	90-100	85-100	50-90	30-52
WaB---------- Wagram	0-6	Loamy sand-----	SM, SP-SM	A-2, A-3	100	98-100	50-85	8-35	10-20	NP
	6-29	Loamy sand-----	SM, SP-SM	A-2, A-3	100	98-100	50-85	8-35	10-20	NP
	29-80	Sandy clay loam, sandy loam.	SC	A-4, A-6, A-2, A-7	100	98-100	60-95	31-49	21-41	8-25

Table 16.--Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
AlA----------	0-7	10-24	1.30-1.50	2.0-6.0	0.12-0.20	0.0-2.9	0.5-2.0	.24	.24	5	3.6-6.5
Altavista	7-80	18-35	1.30-1.50	0.6-2.0	0.12-0.20	0.0-2.9		.24	.24		3.6-6.0
ArB----------	0-6	1-5	1.30-1.70	6.0-20	0.02-0.05	0.0-2.9	0.1-2.0	.10	.10	5	3.6-6.5
Arents	6-80	1-5	1.30-1.70	0.6-2.0	0.02-0.05	0.0-2.9		.10	.10		3.6-6.5
BaA----------	0-8	7-22	1.30-1.60	0.6-6.0	0.08-0.15	0.0-2.9	0.5-1.0	.24	.24	5	4.5-6.0
Bama	8-36	18-32	1.40-1.55	0.6-2.0	0.12-0.18	0.0-2.9		.32	.32		4.5-6.0
	36-80	20-35	1.40-1.60	0.6-2.0	0.12-0.18	0.0-2.9		.32	.32		4.5-6.0
BaB----------	0-5	7-22	1.30-1.60	0.6-6.0	0.08-0.15	0.0-2.9	0.5-1.0	.24	.24	5	4.5-6.0
Bama	5-30	18-32	1.40-1.55	0.6-2.0	0.12-0.18	0.0-2.9		.32	.32		4.5-5.5
	30-65	20-35	1.40-1.60	0.6-2.0	0.12-0.18	0.0-2.9		.32	.32		4.5-5.5
BeA----------	0-2	27-35	1.20-1.50	0.6-2.0	0.11-0.16	3.0-5.9	1.0-6.0	.28	.28	5	3.6-6.0
Bethera	2-60	35-50	1.10-1.50	0.06-0.6	0.14-0.18	3.0-5.9		.32	.32		3.6-6.0
BgB----------	0-11	4-10	1.40-1.50	6.0-20	0.05-0.10	0.0-2.9	0.1-1.5	.10	.10	5	4.5-6.0
Bigbee	11-64	4-10	1.40-1.50	6.0-20	0.05-0.10	0.0-2.9		.10	.10		4.5-6.0
	64-84	1-10	1.40-1.50	6.0-20	0.05-0.08	0.0-2.9		.17	.17		4.5-6.0
BnE:											
Blanton----------	0-6	5-13	1.35-1.60	6.0-20	0.05-0.10	0.0-2.9	0.5-2.0	.10	.10	5	4.5-6.0
	6-68	10-18	1.50-1.65	2.0-6.0	0.10-0.15	0.0-2.9		.15	.15		4.5-5.5
	68-80	12-40	1.60-1.70	0.2-2.0	0.10-0.15	0.0-2.9		.20	.20		4.5-5.5
Luverne----------	0-4	7-20	1.35-1.65	2.0-6.0	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3.6-5.5
	4-27	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	27-40	20-40	1.35-1.65	0.2-0.6	0.12-0.18	0.0-2.9		.28	.28		3.6-5.5
	40-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
BoB----------	0-7	6-12	1.50-1.60	6.0-20	0.05-0.10	0.0-2.9	0.1-2.0	.10	.10	5	4.5-6.5
Bonifay	7-58	15-35	1.60-1.70	0.6-2.0	0.10-0.15	0.0-2.9		.24	.24		4.5-6.5
	58-84	20-45	1.60-1.70	0.2-0.6	0.10-0.15	0.0-2.9		.24	.24		4.5-6.5
CaA----------	0-12	7-17	1.35-1.60	2.0-6.0	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	4.5-6.0
Cahaba	12-48	18-35	1.35-1.60	0.6-2.0	0.12-0.20	0.0-2.9		.28	.28		4.5-6.0
	48-80	4-20	1.40-1.70	2.0-20	0.05-0.10	0.0-2.9		.24	.24		4.5-6.0
CmB----------	0-11	6-12	1.45-1.65	6.0-20	0.05-0.10	0.0-2.9	0.2-2.0	.15	.15	5	4.5-5.5
Compass	11-31	10-18	1.40-1.60	2.0-6.0	0.10-0.15	0.0-2.9		.20	.20		4.5-5.5
	31-65	15-35	1.55-1.75	0.6-2.0	0.10-0.15	0.0-2.9		.28	.28		4.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
CoB----------	0-3	7-25	1.40-1.60	0.6-2.0	0.10-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3.6-5.5
Conecuh	3-47	35-50	1.35-1.60	0.06-0.2	0.12-0.18	3.0-5.9		.32	.32		3.6-5.5
	47-60	45-70	1.30-1.55	0.00-0.06	0.08-0.19	6.0-8.9		.32	.32		3.6-5.5
CoC2----------	0-3	7-25	1.40-1.60	0.6-2.0	0.10-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3.6-5.5
Conecuh	3-52	35-50	1.35-1.60	0.06-0.2	0.12-0.18	3.0-5.9		.32	.32		3.6-5.5
	52-72	45-70	1.30-1.55	0.00-0.06	0.08-0.19	6.0-8.9		.32	.32		3.6-5.5
CwD2----------	0-10	3-10	1.30-1.70	2.0-6.0	0.06-0.10	0.0-2.9	0.5-2.0	.15	.15	4	4.5-5.5
Cowarts	10-39	10-30	1.30-1.50	0.6-2.0	0.10-0.16	0.0-2.9		.28	.28		4.5-5.5
	39-60	25-40	1.30-1.50	0.2-2.0	0.10-0.16	0.0-2.9		.28	.28		4.5-5.5
DgA----------	0-6	5-10	1.35-1.50	2.0-6.0	0.08-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3.5-5.5
Dogue	6-44	35-50	1.45-1.60	0.2-0.6	0.12-0.19	3.0-5.9		.28	.28		3.5-5.5
	44-72	5-30	1.30-1.50	0.6-6.0	0.05-0.14	0.0-2.9		.17	.17		3.5-5.5
EuA----------	0-10	10-20	1.35-1.65	2.0-6.0	0.10-0.14	0.0-2.9	0.5-2.0	.20	.20	5	4.5-5.5
Eunola	10-14	18-35	1.35-1.65	0.6-2.0	0.12-0.17	0.0-2.9		.28	.28		4.5-5.5
	14-52	18-45	1.30-1.60	0.6-2.0	0.12-0.16	0.0-2.9		.32	.32		4.5-5.5
	52-60	8-25	1.35-1.65	2.0-6.0	0.10-0.16	0.0-2.9		.24	.24		4.5-5.5
	60-72	2-11	1.45-1.75	6.0-20	0.02-0.06	0.0-2.9		.20	.20		4.5-5.5
FaA----------	0-9	27-40	0.90-1.40	0.06-0.2	0.15-0.20	6.0-8.9	2.0-7.0	.37	.37	5	6.6-8.4
Faunsdale	9-17	35-60	0.90-1.40	0.06-0.2	0.14-0.20	6.0-8.9		.37	.37		6.6-8.4
	17-45	35-60	1.00-1.30	0.06-0.2	0.14-0.18	6.0-8.9		.32	.32		6.6-8.4
	45-80	40-60	1.00-1.30	0.00-0.06	0.12-0.18	6.0-8.9		.32	.32		6.6-8.4
FuA----------	0-6	2-18	1.25-1.35	2.0-6.0	0.10-0.15	0.0-2.9	3.0-10	.20	.20	5	3.6-5.5
Fluvaquents	6-80	15-45	1.35-1.60	0.06-0.2	0.10-0.20	0.0-2.9		.37	.37		3.6-5.5
GoA----------	0-11	2-8	1.55-1.75	6.0-20	0.06-0.11	0.0-2.9	0.5-2.0	.17	.17	5	3.5-5.5
Goldsboro	11-31	18-30	1.30-1.50	0.6-2.0	0.11-0.17	0.0-2.9		.24	.24		3.5-5.5
	31-72	20-34	1.30-1.40	0.6-2.0	0.11-0.20	0.0-2.9		.24	.24		3.5-5.5
GrA----------	0-5	5-10	1.45-1.55	6.0-20	0.05-0.08	0.0-2.9	0.5-2.0	.15	.15	4	3.5-6.0
Gritney	5-65	35-60	1.30-1.50	0.06-0.2	0.10-0.17	3.0-5.9		.32	.32		3.5-5.5
	65-80	10-35	1.30-1.50	0.06-6.0	0.06-0.12	0.0-2.9		.20	.28		3.5-5.5
GrB----------	0-6	10-25	1.30-1.50	2.0-6.0	0.08-0.12	0.0-2.9	0.5-2.0	.28	.28	4	3.5-6.0
Gritney	6-45	35-60	1.30-1.50	0.06-0.2	0.10-0.17	3.0-5.9		.32	.32		3.5-5.5
	45-72	10-35	1.30-1.50	0.06-6.0	0.06-0.12	0.0-2.9		.20	.28		3.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
HnB----------	0-3	27-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-4.0	.32	.32	5	5.1-7.3
Hannon	3-18	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	18-30	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	30-45	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
	45-65	25-60	1.15-1.50	0.00-0.06	0.05-0.10	3.0-5.9		.28	.28		7.9-8.4
HnC2----------	0-2	40-60	1.10-1.30	0.00-0.06	0.12-0.16	6.0-8.9	1.0-4.0	.32	.32	5	5.1-7.3
Hannon	2-10	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	10-25	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	25-48	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
	48-65	25-60	1.15-1.50	0.00-0.06	0.05-0.10	3.0-5.9		.28	.28		7.9-8.4
HoD2:											
Hannon----------	0-4	27-40	1.10-1.40	0.06-0.20	0.13-0.17	3.0-5.9	1.0-4.0	.32	.32	5	5.1-7.3
	4-12	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	12-28	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	28-60	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
	60-72	25-60	1.15-1.50	0.00-0.06	0.05-0.10	3.0-5.9		.28	.28		7.9-8.4
Maytag----------	0-10	30-40	1.20-1.60	0.2-0.6	0.15-0.20	3.0-5.9	2.0-5.0	.32	.32	5	6.1-8.4
	10-45	35-60	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		6.6-8.4
	45-60	35-70	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		7.4-8.4
HsE:											
Hannon----------	0-4	27-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-4.0	.32	.32	5	5.1-7.3
	4-14	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	14-25	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	25-65	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
Sumter----------	0-14	32-50	1.30-1.60	0.06-2.0	0.12-0.17	6.0-8.9	2.0-5.0	.37	.37	2	6.6-8.4
	14-23	35-57	1.15-1.55	0.06-2.0	0.12-0.17	6.0-8.9		.37	.37		7.4-8.4
	23-34	35-57	1.15-1.50	0.06-2.0	0.11-0.16	3.0-5.9		.32	.37		7.4-8.4
	34-72	---	---	0.00-0.00	---	---		---	---		---
KmA:											
Kinston----------	0-7	5-18	1.40-1.60	2.0-6.0	0.13-0.19	0.0-2.9	2.0-5.0	.24	.24	5	4.5-6.0
	7-58	18-35	1.30-1.50	0.6-2.0	0.14-0.18	0.0-2.9		.32	.32		4.5-5.5
	58-80	---	---	---	---	---		---	---		---
Mooreville-------	0-10	5-27	1.40-1.50	0.6-2.0	0.14-0.20	0.0-2.9	0.5-2.0	.37	.37	5	4.5-5.5
	10-52	18-35	1.40-1.50	0.6-2.08	0.14-0.18	3.0-5.9		.28	.28		4.5-5.5
	52-80	10-40	1.40-1.60	0.6-2.0	0.14-0.18	3.0-5.9		.28	.28		4.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
LcD:											
Lucy----------	0-7	1-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9	0.1-2.0	.10	.10	5	5.1-6.0
	7-31	1-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9		.10	.10		5.1-6.0
	31-41	10-30	1.40-1.60	2.0-6.0	0.10-0.12	0.0-2.9		.24	.24		4.5-5.5
	41-60	20-45	1.40-1.60	0.6-2.0	0.12-0.14	0.0-2.9		.28	.28		4.5-5.5
Luverne----------	0-9	2-12	1.40-1.70	2.0-6.0	0.06-0.12	0.0-2.9	0.5-1.0	.15	.15	5	3.6-5.5
	9-45	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	45-60	10-35	1.35-1.65	0.2-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
LsB:											
Lucy----------	0-5	1-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9	0.1-2.0	.10	.10	5	5.1-6.0
	5-39	1-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9		.10	.10		5.1-6.0
	39-49	10-30	1.40-1.60	2.0-6.0	0.10-0.12	0.0-2.9		.24	.24		4.5-5.5
	49-72	20-45	1.40-1.60	0.6-2.0	0.12-0.14	0.0-2.9		.28	.28		4.5-5.5
Luverne----------	0-9	2-12	1.40-1.70	2.0-6.0	0.06-0.12	0.0-2.9	0.5-1.0	.15	.15	5	3.6-5.5
	9-45	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	45-50	20-40	1.35-1.65	0.2-0.6	0.12-0.18	0.0-2.9		.28	.28		3.6-5.5
	50-65	10-35	1.35-1.65	0.2-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
Springhill-------	0-7	4-10	1.30-1.60	6.0-20	0.06-0.10	0.0-2.9	0.5-2.0	.15	.15	5	4.5-5.5
	7-14	7-18	1.30-1.50	2.0-6.0	0.07-0.12	0.0-2.9		.20	.20		4.5-5.5
	14-56	18-35	1.40-1.60	0.6-2.0	0.11-0.14	0.0-2.9		.24	.24		4.5-5.5
	56-72	5-25	1.40-1.65	2.0-6.0	0.07-0.12	0.0-2.9		.20	.20		4.5-5.5
LuB----------	0-4	7-20	1.35-1.65	2.0-6.0	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3.6-5.5
Luverne	4-32	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	32-45	20-40	1.35-1.65	0.2-0.6	0.12-0.18	0.0-2.9		.28	.28		3.6-5.5
	45-72	10-35	1.35-1.65	0.2-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
LuD2----------	0-3	7-20	1.35-1.65	2.0-6.0	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3.6-5.5
Luverne	3-36	35-50	1.25-1.55	0.2-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	36-48	20-40	1.35-1.65	0.2-0.6	0.12-0.18	0.0-2.9		.28	.28		3.6-5.5
	48-72	10-35	1.35-1.65	0.2-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
LyA----------	0-15	5-20	1.30-1.60	2.0-6.0	0.09-0.13	0.0-2.9	0.5-2.0	.20	.20	5	3.6-5.5
Lynchburg	15-61	19-35	1.30-1.50	0.6-2.0	0.12-0.16	0.0-2.9		.20	.20		3.6-5.5
	61-80	20-50	1.30-1.45	0.6-2.0	0.12-0.18	0.0-2.9		.20	.20		3.6-5.5
MaA----------	0-19	10-25	1.30-1.60	0.6-2.0	0.10-0.15	0.0-2.9	0.5-1.0	.24	.24	5	4.5-6.0
Malbis	19-35	18-33	1.30-1.70	0.6-2.0	0.12-0.20	0.0-2.9		.28	.28		4.5-5.5
	35-64	20-35	1.40-1.60	0.6-2.0	0.12-0.17	0.0-2.9		.28	.28		4.5-5.5
	64-80	20-35	1.45-1.70	0.2-0.6	0.06-0.12	0.0-2.9		.28	.28		4.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
MnA----------	0-7	5-15	1.30-1.60	2.0-6.0	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	4.5-6.0
Marvyn	7-26	18-35	1.30-1.60	0.6-2.0	0.12-0.17	0.0-2.9		.32	.32		4.5-6.0
	26-47	25-45	1.40-1.60	0.6-2.0	0.11-0.16	0.0-2.9		.32	.32		4.5-6.0
	47-65	10-30	1.40-1.60	0.2-2.0	0.07-0.14	0.0-2.9		.32	.32		4.5-6.0
MnB----------	0-9	2-12	1.35-1.70	2.0-6.0	0.06-0.11	0.0-2.9	0.5-2.0	.15	.15	5	4.5-6.0
Marvyn	9-38	18-35	1.30-1.60	0.6-2.0	0.12-0.17	0.0-2.9		.32	.32		4.5-6.0
	38-50	25-45	1.40-1.60	0.6-2.0	0.11-0.16	0.0-2.9		.32	.32		4.5-6.0
	50-62	10-30	1.40-1.60	0.2-2.0	0.07-0.14	0.0-2.9		.32	.32		4.5-6.0
MtA----------	0-5	40-60	1.15-1.55	0.06-0.2	0.14-0.18	6.0-8.9	2.0-5.0	.32	.32	5	6.1-8.4
Maytag	5-48	35-60	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		6.6-8.4
	48-65	35-70	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		7.4-8.4
MuB:											
Maytag----------	0-4	30-40	1.20-1.60	0.2-0.6	0.15-0.20	3.0-5.9	2.0-5.0	.32	.32	5	6.1-8.4
	4-44	35-60	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		6.6-8.4
	44-60	35-70	1.15-1.50	0.06-0.2	0.12-0.17	6.0-8.9		.32	.32		7.4-8.4
Hannon----------	0-7	27-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-4.0	.32	.32	5	5.1-7.3
	7-16	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	16-26	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	26-59	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
	59-80	25-60	1.15-1.50	0.00-0.06	0.05-0.10	3.0-5.9		.28	.28		7.9-8.4
MyA----------	0-6	10-25	1.30-1.60	0.6-2.0	0.16-0.24	0.0-2.9	0.5-4.0	.32	.32	5	4.5-6.0
Myatt	6-55	18-35	1.30-1.50	0.2-2.0	0.12-0.20	0.0-2.9		.28	.28		3.6-5.5
	55-65	7-30	1.30-1.50	0.2-2.0	0.10-0.20	0.0-2.9		.24	.32		3.6-5.5
OcA----------	0-6	4-10	1.45-1.65	2.0-20	0.05-0.08	0.0-2.9	0.1-2.0	.10	.10	5	4.5-5.5
Ocilla	6-29	4-10	1.45-1.65	2.0-20	0.05-0.08	0.0-2.9		.10	.10		4.5-5.5
	29-60	15-35	1.55-1.70	0.6-2.0	0.09-0.12	0.0-2.9		.24	.24		4.5-5.5
	60-80	15-40	1.55-1.70	0.2-2.0	0.09-0.12	0.0-2.9		.24	.24		4.5-5.5
OkC2----------	0-4	30-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	2.0-7.0	.32	.32	5	4.5-7.3
Oktibbeha	4-14	60-80	1.00-1.30	0.00-0.06	0.12-0.16	9.0-25.0		.32	.32		3.5-5.5
	14-38	60-80	1.00-1.30	0.00-0.06	0.12-0.16	9.0-25.0		.32	.32		3.5-6.5
	38-65	50-70	1.10-1.40	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		6.6-8.4
OkE2----------	0-3	30-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	2.0-7.0	.32	.32	5	4.5-7.3
Oktibbeha	3-18	60-80	1.00-1.30	0.00-0.06	0.12-0.16	9.0-25.0		.32	.32		3.5-5.5
	18-45	60-80	1.00-1.30	0.00-0.06	0.12-0.16	9.0-25.0		.32	.32		3.5-6.5
	45-72	50-70	1.10-1.40	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		6.6-8.4
OrA----------	0-6	7-15	1.30-1.50	2.0-6.0	0.07-0.10	0.0-2.9	0.5-2.0	.20	.20	5	4.5-6.0
Orangeburg	6-80	18-35	1.60-1.75	0.6-2.0	0.11-0.14	0.0-2.9		.24	.24		4.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
PaD---------- Pacolet	0-7	8-20	1.00-1.50	2.0-6.0	0.08-0.12	0.0-2.9	0.5-2.0	.20	.20	3	4.5-6.5
	7-30	35-65	1.30-1.50	0.6-2.0	0.12-0.15	0.0-2.9		.28	.28		4.5-6.0
	30-38	15-30	1.20-1.50	0.6-2.0	0.08-0.15	0.0-2.9		.28	.28		4.5-6.0
	38-60	10-25	1.20-1.50	0.6-2.0	0.08-0.15	0.0-2.9		.28	.28		4.5-6.0
PaE---------- Pacolet	0-4	8-20	1.00-1.50	2.0-6.0	0.08-0.12	0.0-2.9	0.5-2.0	.20	.20	3	4.5-6.5
	4-28	35-65	1.30-1.50	0.6-2.0	0.12-0.15	0.0-2.9		.28	.28		4.5-6.0
	28-36	15-30	1.20-1.50	0.6-2.0	0.08-0.15	0.0-2.9		.28	.28		4.5-6.0
	36-72	10-25	1.20-1.50	0.6-2.0	0.08-0.15	0.0-2.9		.28	.28		4.5-6.0
PoA:											
Pelham----------	0-26	5-10	1.50-1.70	6.0-20	0.05-0.08	0.0-2.9	1.0-2.0	.10	.10	5	3.6-5.5
	26-68	15-30	1.30-1.60	0.6-2.0	0.10-0.13	0.0-2.9		.24	.24		3.6-5.5
	68-80	15-40	1.30-1.60	0.2-2.0	0.10-0.16	0.0-2.9		.24	.24		3.6-5.5
Ocilla----------	0-24	4-10	1.45-1.65	2.0-20	0.05-0.08	0.0-2.9	1.0-2.0	.10	.10	5	4.5-5.5
	24-60	15-35	1.55-1.70	0.6-2.0	0.09-0.12	0.0-2.9		.24	.24		4.5-5.5
	60-70	15-40	1.55-1.70	0.2-2.0	0.09-0.12	0.0-2.9		.24	.24		4.5-5.5
Pt---------- Pits	0-60	---	---	---	---	---	---	---	---	---	---
RbA---------- Red Bay	0-9	7-20	1.40-1.55	2.0-6.0	0.07-0.14	0.0-2.9	0.5-2.0	.20	.20	5	4.5-6.0
	9-15	10-25	1.30-1.60	0.6-6.0	0.10-0.14	0.0-2.9		.15	.15		4.5-6.0
	15-52	18-35	1.30-1.50	0.6-2.0	0.12-0.17	0.0-2.9		.17	.17		4.5-5.5
	52-80	20-45	1.40-1.60	0.6-2.0	0.11-0.14	0.0-2.9		.24	.24		4.5-5.5
ReA---------- Riverview	0-11	10-27	1.30-1.60	0.6-2.0	0.16-0.24	0.0-2.9	0.5-2.0	.32	.32	5	4.5-6.5
	11-48	18-35	1.20-1.40	0.6-2.0	0.15-0.22	0.0-2.9		.24	.24		4.5-6.0
	48-72	4-18	1.20-1.50	2.0-6.0	0.07-0.11	0.0-2.9		.17	.17		4.5-6.0
RoB:											
Riverview--------	0-3	10-27	1.30-1.60	0.6-2.0	0.16-0.24	0.0-2.9	0.5-2.0	.32	.32	5	4.5-6.5
	3-30	18-35	1.20-1.40	0.6-2.0	0.15-0.22	0.0-2.9		.24	.24		4.5-6.0
	30-60	4-18	1.20-1.50	2.0-6.0	0.07-0.11	0.0-2.9		.17	.17		4.5-6.0
Bruno----------	0-10	3-10	1.40-1.55	6.0-20	0.10-0.15	0.0-2.9	0.5-2.0	.17	.17	5	5.1-8.4
	10-32	2-8	1.40-1.60	6.0-20	0.05-0.10	0.0-2.9		.15	.15		5.1-8.4
	32-60	2-8	1.40-1.60	6.0-20	0.02-0.05	0.0-2.9		.10	.10		5.1-8.4
Rw. Riverwash											
RyA---------- Roanoke	0-5	10-27	1.20-1.50	0.6-2.0	0.14-0.20	0.0-2.9	0.5-2.0	.37	.37	5	3.5-5.5
	5-12	20-35	1.20-1.50	0.06-0.2	0.16-0.19	3.0-5.9		.24	.24		3.5-5.5
	12-72	35-60	1.35-1.65	0.06-0.2	0.10-0.19	3.0-5.9		.24	.24		3.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
SaB----------	0-14	8-18	1.40-1.65	0.6-2.0	0.10-0.15	0.0-2.9	1.0-4.0	.20	.20	5	3.6-6.0
Searcy	14-20	25-45	1.35-1.60	0.2-0.6	0.12-0.18	3.0-5.9		.24	.24		3.6-6.0
	20-65	40-55	1.40-1.65	0.06-0.2	0.12-0.20	3.0-5.9		.28	.28		3.6-6.0
SbB----------	0-6	7-15	1.30-1.50	2.0-6.0	0.09-0.12	0.0-2.9	0.5-2.0	.20	.20	5	4.5-5.5
Springhill	6-60	18-35	1.40-1.60	0.6-2.0	0.11-0.14	0.0-2.9		.24	.24		4.5-5.5
	60-80	5-25	1.40-1.65	2.0-6.0	0.07-0.12	0.0-2.9		.20	.20		4.5-5.5
SrA----------	0-15	40-60	1.20-1.50	0.06-0.2	0.14-0.20	6.0-8.9	2.0-7.0	.32	.32	5	6.6-8.4
Sucarnoochee	15-34	40-60	1.00-1.30	0.00-0.06	0.14-0.18	6.0-8.9		.32	.32		6.6-8.4
	34-65	45-70	1.00-1.30	0.00-0.06	0.12-0.18	6.0-8.9		.32	.32		6.6-8.4
StE:											
Sumter----------	0-12	10-27	1.40-1.60	0.6-2.0	0.15-0.22	0.0-2.9	2.0-5.0	.37	.37	3	6.6-8.4
	12-24	35-57	1.15-1.55	0.06-2.0	0.12-0.17	6.0-8.9		.37	.37		7.4-8.4
	24-35	35-57	1.15-1.50	0.06-2.0	0.11-0.16	3.0-5.9		.32	.37		7.4-8.4
	35-72	---	---	0.00-0.06	---	---		---	---		---
Hannon----------	0-3	27-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-4.0	.32	.32	5	5.1-7.3
	3-14	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.1-7.3
	14-28	50-75	1.10-1.30	0.00-0.06	0.05-0.10	9.0-25.0		.32	.32		5.6-7.8
	28-72	35-60	1.10-1.40	0.00-0.06	0.08-0.12	6.0-8.9		.32	.32		7.4-8.4
TcA----------	0-9	2-15	1.40-1.55	2.0-6.0	0.09-0.12	0.0-2.9	0.1-2.0	.10	.10	4	5.1-6.5
Toccoa	9-12	2-15	1.40-1.55	2.0-6.0	0.09-0.12	0.0-2.9		.10	.10		5.1-6.5
	12-80	2-19	1.40-1.50	2.0-6.0	0.09-0.12	0.0-2.9		.20	.20		5.1-6.5
ToB----------	0-12	2-15	1.40-1.55	2.0-6.0	0.09-0.12	0.0-2.9	0.1-2.0	.10	.10	4	5.1-6.5
Toccoa	12-72	2-19	1.40-1.50	2.0-6.0	0.09-0.12	0.0-2.9		.20	.20		5.1-6.5
TpB:											
Troup----------	0-10	2-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9	0.1-2.0	.10	.10	5	4.5-6.0
	10-57	2-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9		.10	.10		4.5-6.0
	57-90	15-35	1.40-1.60	0.6-2.0	0.10-0.13	0.0-2.9		.20	.20		4.5-5.5
Alaga----------	0-8	2-12	1.60-1.75	6.0-20	0.05-0.09	0.0-2.9	0.1-2.0	.10	.10	5	3.6-6.0
	8-90	2-12	1.60-1.75	6.0-20	0.05-0.09	0.0-2.9		.10	.10		3.6-6.0
TsF:											
Troup----------	0-4	2-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9	0.1-2.0	.10	.10	5	4.5-6.0
	4-55	2-12	1.30-1.70	6.0-20	0.08-0.12	0.0-2.9		.10	.10		4.5-6.0
	55-75	15-35	1.40-1.60	0.6-2.0	0.10-0.13	0.0-2.9		.20	.20		4.5-5.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
TsF:											
Springhill-------	0-4	7-15	1.30-1.50	2.0-6.0	0.09-0.12	0.0-2.9	0.5-2.0	.20	.20	5	4.5-5.5
	4-12	7-18	1.30-1.50	2.0-6.0	0.07-0.12	0.0-2.9		.20	.20		4.5-5.5
	12-50	18-35	1.40-1.60	0.6-2.0	0.11-0.14	0.0-2.9		.24	.24		4.5-5.5
	50-65	5-25	1.40-1.65	2.0-6.0	0.07-0.12	0.0-2.9		.20	.20		4.5-5.5
Luverne----------	0-7	7-20	1.35-1.65	2.0-6.0	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3.6-5.5
	7-42	35-50	1.25-1.55	0.20-0.6	0.12-0.18	3.0-5.9		.28	.28		3.6-5.5
	42-50	20-40	1.35-1.65	0.20-0.6	0.12-0.18	0.0-2.9		.28	.28		3.6-5.5
	50-65	10-35	1.35-1.65	0.20-0.6	0.05-0.10	0.0-2.9		.28	.28		3.6-5.5
UcB----------	0-8	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	4.5-5.5
Uchee	8-28	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9		.10	.10		4.5-5.5
	28-37	8-30	1.40-1.60	0.6-2.0	0.10-0.15	0.0-2.9		.24	.24		4.5-5.5
	37-46	25-50	1.40-1.60	0.2-0.6	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
	46-65	15-40	1.40-1.60	0.2-2.0	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
UcD----------	0-4	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	4.5-5.5
Uchee	4-31	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9		.10	.10		4.5-5.5
	31-46	8-30	1.40-1.60	0.6-2.0	0.10-0.15	0.0-2.9		.24	.24		4.5-5.5
	46-51	25-50	1.40-1.60	0.2-0.6	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
	51-65	15-40	1.40-1.60	0.2-2.0	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
UcE2:											
Uchee----------	0-7	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	4.5-5.5
	7-22	3-10	1.30-1.70	6.0-20	0.05-0.10	0.0-2.9		.10	.10		4.5-5.5
	22-37	8-30	1.40-1.60	0.6-2.0	0.10-0.15	0.0-2.9		.24	.24		4.5-5.5
	37-42	25-50	1.40-1.60	0.2-0.6	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
	42-72	15-40	1.40-1.60	0.2-2.0	0.10-0.16	3.0-5.9		.28	.28		4.5-5.5
Cowarts----------	0-7	5-20	1.30-1.65	2.0-6.0	0.08-0.13	0.0-2.9	1.0-3.0	.24	.24	4	4.5-5.5
	7-19	10-30	1.30-1.50	0.6-2.0	0.10-0.16	0.0-2.9		.28	.28		4.5-5.5
	19-26	25-40	1.30-1.50	0.2-2.0	0.10-0.16	0.0-2.9		.28	.28		4.5-5.5
	26-60	18-35	1.65-1.80	0.06-0.6	0.10-0.14	0.0-2.9		.24	.24		4.5-5.5
UdE----------	0-80	---	---	---	---	---	---	---	---	5	3.6-5.5
Udorthents											
UoC----------	0-80	---	---	---	---	---	---	---	---	5	3.6-5.5
Udorthents											
UuA:											
Udorthents-------	0-80	---	---	---	---	---	---	---	---	5	3.6-5.5
Urban land.											

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Soil reaction
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*				*pH*
UvA:											
Urbo----------	0-6	12-35	1.40-1.50	0.06-0.2	0.19-0.21	0.0-2.9	1.0-3.0	.49	.49	5	4.5-5.5
	6-80	35-55	1.45-1.55	0.00-0.06	0.18-0.20	3.0-5.9		.28	.28		4.5-5.5
Una----------	0-4	28-45	1.40-1.60	0.00-0.06	0.15-0.20	6.0-8.9	1.0-3.0	.32	.32	5	4.5-5.5
	4-80	35-55	1.40-1.60	0.00-0.06	0.15-0.20	6.0-8.9		.28	.28		4.5-5.5
Mooreville-------	0-4	5-27	1.40-1.50	0.6-2.0	0.14-0.20	0.0-2.9	0.5-2.0	.37	.37	5	4.5-5.5
	4-55	18-35	1.40-1.50	0.6-2.0	0.14-0.18	3.0-5.9		.28	.28		4.5-5.5
	55-88	10-40	1.40-1.60	0.6-2.0	0.14-0.18	3.0-5.9		.28	.28		4.5-5.5
VaA---------- Vaiden	0-7	30-40	1.10-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-5.0	.32	.32	5	4.5-6.5
	7-48	60-75	1.00-1.30	0.00-0.06	0.10-0.15	9.0-25.0		.32	.32		4.5-6.5
	48-70	40-75	1.10-1.40	0.00-0.06	0.10-0.15	9.0-25.0		.32	.32		6.6-8.4
WaB---------- Wagram	0-6	2-10	1.60-1.75	6.0-20	0.05-0.08	0.0-2.9	0.1-2.0	.15	.15	5	4.5-6.0
	6-29	2-10	1.60-1.75	6.0-20	0.05-0.08	0.0-2.9		.15	.15		4.5-6.0
	29-80	10-35	1.35-1.60	0.6-2.0	0.12-0.16	0.0-2.9		.20	.20		4.5-6.0

Table 17.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Dur-ation	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			*In*			
AlA---------- Altavista	C	Rare------	---	---	1.5-2.5	Apparent	Jan-Mar	>60	---	Moderate	Moderate.
ArB---------- Arents	C	None------	---	---	>6.0	---	---	>60	---	Low-----	High.
BaA, BaB------ Bama	B	None------	---	---	>6.0	---	---	>60	---	Low-----	Moderate.
BeA---------- Bethera	D	Frequent--	Brief--	Dec-Apr	0-1.5	Apparent	Dec-Apr	>60	---	High----	High.
BgB---------- Bigbee	A	Rare------	---	---	3.5-6.0	Apparent	Jan-Mar	>60	---	Low-----	Moderate.
BnE:											
Blanton------	A	None------	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	High----	High.
Luverne------	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
BoB---------- Bonifay	A	None------	---	---	4.0-5.0	Perched	Jan-Mar	>60	---	Low-----	High.
CaA---------- Cahaba	B	Rare------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
CmB---------- Compass	B	None------	---	---	2.5-3.5	Perched	Jan-Mar	>60	---	Moderate	High.
CoB, CoC2----- Conecuh	D	None------	---	---	>6.0	---	---	>60	---	High----	High.
CwD2---------- Cowarts	C	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
DgA---------- Dogue	C	Rare------	---	---	1.5-3.0	Apparent	Jan-Mar	>60	---	High----	High.
EuA---------- Eunola	C	Rare------	---	---	1.5-2.5	Apparent	Jan-Mar	>60	---	Low-----	High.
FaA---------- Faunsdale	D	None------	---	---	4.0-6.0	Perched	Jan-Apr	>60	---	High----	Low.
FuA---------- Fluvaquents	D	Frequent--	Brief--	Dec-Apr	+2-1.0	Apparent	Jan-Dec	>60	---	High----	High.
GoA---------- Goldsboro	B	None------	---	---	2.0-3.0	Apparent	Jan-Mar	>60	---	Moderate	High.
GrA, GrB------ Gritney	C	None------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	High----	High.
HnB, HnC2----- Hannon	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Dur-ation	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			*In*			
HoD2:											
Hannon-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
Maytag-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
HsE:											
Hannon-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
Sumter-------	C	None------	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
KmA:											
Kinston------	D	Frequent--	Brief--	Dec-Apr	0-1.0	Apparent	Dec-Apr	>60	---	High----	High.
Mooreville---	C	Frequent--	Brief--	Dec-Apr	1.5-3.0	Apparent	Jan-Mar	>60	---	Moderate	High.
LcD:											
Lucy---------	A	None------	---	---	>6.0	---	---	>60	---	Low-----	High.
Luverne------	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
LsB:											
Lucy---------	A	None------	---	---	>6.0	---	---	>60	---	Low-----	High.
Luverne------	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
Springhill---	B	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
LuB, LuD2----- Luverne	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
LyA---------- Lynchburg	C	Rare------	---	---	0.5-1.5	Apparent	Jan-Mar	>60	---	High----	High.
MaA---------- Malbis	B	None------	---	---	2.5-4.0	Perched	Jan-Mar	>60	---	Moderate	Moderate.
MnA, MnB------ Marvyn	B	None------	---	---	>6.0	---	---	>60	---	Moderate	High.
MtA---------- Maytag	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
MuB:											
Maytag-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
Hannon-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
MyA---------- Myatt	D	Rare------	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High----	High.
OcA---------- Ocilla	C	Rare------	---	---	1.0-2.5	Perched	Jan-Mar	>60	---	High----	Moderate.
OkC2, OkE2---- Oktibbeha	D	None------	---	---	>6.0	---	---	>60	---	High----	High.
OrA---------- Orangeburg	B	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
PaD, PaE------ Pacolet	B	None------	---	---	>6.0	---	---	>60	---	High----	High.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Dur-ation	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			*In*			
PoA:											
Pelham-------	D	Rare------	---	---	0-1.0	Perched	Jan-Mar	>60	---	High----	High.
Ocilla-------	C	Rare------	---	---	1.0-2.5	Perched	Jan-Mar	>60	---	High----	Moderate.
Pt---------- Pits	---	None------	---	---	>6.0	---	---	>60	---	---	---
RbA---------- Red Bay	B	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
ReA---------- Riverview	B	Occasional	Brief--	Dec-Apr	3.5-5.0	Apparent	Jan-Apr	>60	---	Low-----	Moderate.
RoB:											
Riverview----	B	Occasional	Brief--	Dec-Apr	3.5-5.0	Apparent	Jan-Apr	>60	---	Low-----	Moderate.
Bruno--------	A	Occasional	Brief--	Dec-Apr	4.0-6.0	Apparent	Jan-Apr	>60	---	Low-----	Low.
Rw---------- Riverwash	A	Frequent--	Brief--	Dec-Apr	0-3.5	Apparent	Jan-Dec	>60	---	---	---
RyA---------- Roanoke	D	Occasional	Brief--	Dec-Apr	0-1.0	Apparent	Jan-Mar	>60	---	High----	High.
SaB---------- Searcy	C	None------	---	---	2.0-3.5	Perched	Jan-Mar	>60	---	High----	High.
SbB---------- Springhill	B	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
SrA---------- Sucarnoochee	D	Frequent--	Brief--	Dec-Apr	0.5-1.5	Perched	Jan-Mar	>60	---	High----	Low.
StE:											
Sumter-------	C	None------	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
Hannon-------	D	None------	---	---	>6.0	---	---	>60	---	High----	Low.
TcA, ToB------ Toccoa	B	Occasional	Brief--	Dec-Apr	2.5-5.0	Apparent	Jan-Apr	>60	---	Low-----	Moderate.
TpB:											
Troup--------	A	None------	---	---	>6.0	---	---	>60	---	Low-----	Moderate.
Alaga--------	A	None------	---	---	>6.0	---	---	>60	---	Low-----	Moderate.
TsF:											
Troup--------	A	None------	---	---	>6.0	---	---	>60	---	Low-----	Moderate.
Springhill---	B	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Luverne------	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
UcB, UcD------ Uchee	A	None------	---	---	3.5-5.0	Perched	Jan-Mar	>60	---	Low-----	High.
UcE2:											
Uchee--------	A	None------	---	---	3.5-5.0	Perched	Jan-Mar	>60	---	Low-----	High.
Cowarts------	C	None------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.

Table 17.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Dur-ation	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			*In*			
UdE, UoC------ Udorthents	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
UuA:											
Udorthents---	C	None------	---	---	>6.0	---	---	>60	---	High----	High.
Urban land---	D	None------	---	---	---	---	---	---	---	---	---
UvA:											
Urbo---------	D	Frequent--	Brief--	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	>60	---	High----	High.
Una----------	D	Frequent--	Brief--	Dec-Apr	+2-0.5	Apparent	Dec-Apr	>60	---	High----	High.
Mooreville---	C	Frequent--	Brief--	Dec-Apr	1.5-3.0	Apparent	Jan-Apr	>60	---	Moderate	High.
VaA---------- Vaiden	D	None------	---	---	1.0-2.0	Perched	Jan-Mar	>60	---	High----	High.
WaB---------- Wagram	A	None------	---	---	>6.0	---	---	>60	---	Low-----	High.

Table 18.--Physical Analyses of Selected Soils

(Analyses performed by the Agronomy and Soils Clay Mineralogy Laboratory, Auburn University, and the Alabama Agricultural Experiment Station.)

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				
Bama*	0-2	Ap1	69.8	25.7	4.6
(S95AL-087-3)	2-8	Ap2	73.2	23.3	3.6
	8-14	E	60.8	31.2	8.0
	14-19	Bt1	49.9	29.3	20.7
	19-36	Bt2	48.6	23.0	28.4
	36-66	Bt3	51.6	22.3	26.1
	66-80	Bt4	55.7	22.7	21.5
Bonifay*	0-7	Ap	82.4	14.5	3.1
(S90AL-087-1)	7-23	E1	79.5	17.7	2.8
	23-38	E2	80.9	16.9	2.2
	38-58	E3	85.3	12.5	2.2
	58-66	Btv1	70.0	8.9	21.1
	66-72	Btv2	66.7	6.5	26.8
	72-84	Btv3	71.5	5.7	22.8
Compass*	0-7	Ap1	84.2	11.9	3.9
(S88AL-087-2)	7-11	Ap2	80.6	13.4	6.0
	11-23	Bt1	72.8	16.7	10.5
	23-31	Bt2	74.2	12.8	13.0
	31-40	Btv1	74.7	11.3	14.0
	40-48	Btv2	73.8	10.9	15.3
	48-53	Btv3	71.8	10.8	17.4
	53-65	Btv4	71.6	9.5	18.9
Goldsboro**	0-6	Ap	75.5	22.4	2.1
(S91AL-087-7)	6-11	E	71.0	26.3	2.7
	11-20	Bt1	56.6	24.1	19.3
	20-31	Bt2	55.7	22.8	21.5
	31-41	Btg1	54.5	20.0	25.5
	41-65	Btg2	48.8	20.9	30.3
	65-80	Btg3	61.4	17.8	20.8
Hannon*	0-7	Ap	29.6	35.4	35.0
(S91AL-087-6)	7-16	Bt	11.8	21.2	67.0
	16-21	Bss1	8.9	20.1	71.0
	21-26	Bss2	9.0	21.2	69.8
	26-40	Bkss1	12.3	44.8	42.9
	40-59	Bkss2	10.2	38.2	51.7
	59-76	BC	36.6	31.1	32.3
	76-80	C	24.5	34.8	40.7
Malbis*	0-8	Ap	66.1	28.6	5.2
(S95AL-087-4)	8-13	E	65.9	27.3	6.7
	13-19	BE	61.1	26.2	12.7
	19-35	Bt	50.5	21.8	27.7
	35-49	Btv1	56.2	18.9	24.9
	49-64	Btv2	58.7	17.5	23.9
	64-80	Btv3	60.6	15.3	24.1
Maytag*	0-5	Ap	1.8	56.5	41.7
(S89AL-087-4)	5-20	Bkss1	9.8	39.2	51.0
	20-36	Bkss2	10.4	37.9	51.7
	36-48	Bkss3	2.7	38.6	58.7
	48-65	Bkss4	3.5	36.3	60.2

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				
Myatt*	0-6	Ap	37.2	42.6	20.2
(S88AL-087-1)	6-12	Btg1	38.8	37.0	24.3
	12-18	Btg2	34.2	35.6	30.2
	18-30	Btg3	29.3	36.0	34.7
	30-50	Btg4	23.6	33.3	43.1
	50-55	Btg5	---	---	---
	55-65	BC	31.0	34.0	35.0
Red Bay*	0-4	Ap1	70.4	16.3	13.2
(S95AL-087-1)	4-9	Ap2	73.0	14.5	12.4
	9-15	Bt1	55.4	18.4	26.2
	15-32	Bt2	52.1	17.5	30.4
	32-52	Bt3	54.4	14.1	31.5
	52-67	Bt4	60.5	11.9	27.6
	67-80	Bt5	69.5	10.1	20.4
Sucarnoochee***	0-6	Ap	13.7	41.3	45.0
(S83AL-087-2)	6-13	A	9.9	34.7	55.4
	13-16	AB	7.5	33.8	58.7
	16-27	Bss1	9.5	31.8	58.7
	27-50	Bss2	8.8	35.7	55.5
	50-56	Bss3	11.1	35.0	53.9
Toccoa*	0-9	Ap	71.5	20.1	8.4
(S89AL-087-1)	9-12	A	63.5	25.9	10.6
	12-27	C	79.5	14.8	5.7
	27-37	Ab	47.7	35.1	17.2
	37-43	C'1	64.5	26.4	9.1
	43-59	C'2	35.2	45.0	19.8
	59-72	C'3	83.6	13.6	2.8
Uchee*	0-8	Ap	77.9	18.2	3.9
(S89AL-087-3)	8-15	E1	78.7	17.4	3.9
	15-23	E2	79.4	15.8	4.8
	23-28	E3	77.9	16.3	5.8
	28-37	Bt1	73.1	16.4	10.5
	37-46	Bt2	57.5	10.4	32.1
	46-65	C	52.0	11.2	36.8

* This soil is the typical pedon for the series in Macon County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

** This pedon is in an area of Goldsboro loamy fine sand, 0 to 2 percent slopes, frequently flooded. It is not the typical pedon for this map unit. It is about 2,200 feet east and 1,200 feet north of the southwest corner of sec. 27, T. 15 N., R. 23 E.

*** This pedon is in an area of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded. It is not the typical pedon for this map unit. It is about 1,800 feet south and 180 feet west of the northeast corner of sec. 36, T. 15 N., R. 22 E.

Table 19.--Chemical Analyses of Selected Soils

(Analyses performed by the Agronomy and Soils Clay Mineralogy Laboratory, Auburn University, and the Alabama Agricultural Experiment Station.)

Soil name and sample number	Depth	Horizon	Extractable bases			Base saturation	Reaction	Cation-exchange capacity
			Ca	Mg	K			
			meq/100g			Pct	pH	meq/100g
Bama*	0-2	Ap1	2.02	0.87	0.22	50	5.1	6.22
(S95AL-087-3)	2-8	Ap2	0.57	0.07	0.05	42	5.5	1.66
	8-14	E	0.77	0.25	0.06	47	5.6	2.40
	14-19	Bt1	1.52	0.90	0.08	52	5.8	4.44
	19-36	Bt2	1.49	0.95	0.09	48	5.9	4.91
	36-66	Bt3	0.55	0.55	0.05	24	5.1	4.56
	66-80	Bt4	0.33	0.33	0.04	17	5.2	4.07
Bonifay*	0-7	Ap	0.25	0.05	0.01	12	5.4	2.48
(S90AL-087-1)	7-23	E1	0.19	0.00	0.00	24	5.8	0.91
	23-38	E2	0.04	0.04	0.00	22	5.5	0.44
	38-58	E3	0.08	0.01	0.02	36	5.7	0.44
	58-66	Btv1	1.43	0.34	0.07	34	5.4	4.33
	66-72	Btv2	0.91	0.25	0.05	21	5.0	7.31
	72-84	Btv3	0.61	0.13	0.02	14	5.0	6.93
Compass*	0-7	Ap1	0.51	0.13	0.05	29	5.7	1.93
(S88AL-087-2)	7-11	Ap2	0.39	0.18	0.17	28	5.9	2.13
	11-23	Bt1	0.06	0.07	0.15	15	4.6	2.18
	23-31	Bt2	0.08	0.05	0.15	12	4.6	2.69
	31-40	Btv1	0.19	0.08	0.07	14	4.8	2.48
	40-48	Btv2	0.34	0.07	0.11	19	4.9	2.18
	48-53	Btv3	0.38	0.07	0.20	22	4.9	2.74
	53-65	Btv4	0.16	0.04	0.18	18	5.0	3.37
Goldsboro**	0-6	Ap	0.40	0.07	0.08	24	5.2	2.71
(S91AL-087-7)	6-11	E	0.24	0.02	0.05	24	5.2	1.24
	11-20	Bt1	0.54	0.07	0.10	11	4.6	6.11
	20-31	Bt2	0.54	0.15	0.12	12	4.5	7.63
	31-41	Btg1	0.54	0.17	0.11	9	4.3	9.88
	41-65	Btg2	0.55	0.12	0.13	8	4.3	13.54
	65-80	Btg3	0.53	0.12	0.11	9	4.4	10.49
Hannon*	0-7	Ap	17.92	5.64	0.23	90	7.0	25.55
(S91AL-087-6)	7-16	Bt	23.26	4.45	0.33	86	6.0	40.57
	16-21	Bss1	27.18	2.63	0.40	88	5.8	43.27
	21-26	Bss2	37.02	2.28	0.40	93	7.2	45.51
	26-40	Bkss1	29.07	1.18	0.22	96	8.1	23.77
	40-59	Bkss2	26.63	1.77	0.27	95	8.0	25.17
	59-76	BC	20.67	1.82	0.30	93	8.1	17.45
	76-80	C	28.15	1.50	0.33	93	8.2	21.52
Malbis*	0-8	Ap	1.04	0.38	0.20	50	5.7	3.51
(S95AL-087-4)	8-13	E	0.66	0.17	0.13	41	5.7	2.69
	13-19	BE	0.92	0.47	0.17	49	5.8	2.96
	19-35	Bt	1.70	0.53	0.14	41	5.3	5.96
	35-49	Btv1	0.97	0.63	0.06	31	5.1	4.77
	49-64	Btv2	0.70	0.65	0.05	29	5.2	4.62
	64-80	Btv3	0.58	0.56	0.05	25	5.2	4.38
Maytag*	0-5	Ap	26.46	0.68	0.39	94	7.5	36.91
(S89AL-087-4)	5-20	Bkss1	23.78	0.32	0.33	93	7.9	37.55
	20-36	Bkss2	24.17	0.26	0.26	94	8.0	35.37
	36-48	Bkss3	27.10	0.65	0.42	96	8.0	34.06
	48-65	Bkss4	26.88	1.05	0.57	97	8.2	32.04

Table 19.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Extractable bases Ca	Mg	K	Base saturation	Reaction	Cation-exchange capacity
			meq/100g			*Pct*	*pH*	*meq/100g*
Myatt*	0-6	Ap	0.60	0.35	0.23	24	4.8	9.05
(S88AL-087-1)	6-12	Btg1	0.17	0.13	0.14	14	4.5	6.96
	12-18	Btg2	0.12	0.14	0.10	12	4.5	9.45
	18-30	Btg3	0.04	0.19	0.06	10	4.6	11.46
	30-50	Btg4	0.08	0.34	0.09	9	4.6	14.73
	50-55	Btg5	---	---	---	---	---	---
	55-65	BC	0.17	0.53	0.10	14	4.8	14.64
Red Bay*	0-4	Ap1	1.84	0.76	0.44	66	6.6	4.27
(S95AL-087-1)	4-9	Ap2	1.38	0.68	0.29	57	6.4	3.64
	9-15	Bt1	1.16	0.65	0.34	40	5.4	4.60
	15-32	Bt2	0.94	0.32	0.22	27	4.7	4.68
	32-52	Bt3	0.84	0.19	0.18	22	4.7	4.44
	52-67	Bt4	0.73	0.16	0.09	21	4.7	3.72
	67-80	Bt5	0.46	0.12	0.04	18	4.5	2.69
Sucarnoochee***	0-6	Ap	27.78	0.53	0.16	91	7.3	31.18
(S83AL-087-2)	6-13	A	26.18	0.47	0.16	89	7.5	29.92
	13-16	AB	24.72	0.28	0.15	89	7.0	28.01
	16-27	Bss1	22.95	0.19	0.12	90	7.5	25.77
	27-50	Bss2	20.78	0.11	0.11	89	7.5	23.39
	50-56	Bss3	20.60	0.29	0.11	89	7.2	23.64
Toccoa*	0-9	Ap	1.49	0.80	0.19	71	6.2	3.45
(S89AL-087-1)	9-12	A	1.70	0.93	0.09	53	5.7	4.39
	12-27	C	1.11	0.46	0.05	64	5.4	2.82
	27-37	Ab	2.09	0.72	0.05	51	5.8	6.49
	37-43	C'1	1.35	0.36	0.05	51	5.5	3.63
	43-59	C'2	2.29	0.92	0.05	50	5.1	7.41
	59-72	C'3	0.87	0.40	0.02	59	5.3	2.45
Uchee*	0-8	A	0.23	0.12	0.05	26	5.2	3.02
(S89AL-087-3)	8-15	E1	0.13	0.08	0.04	22	5.2	1.90
	15-23	E2	0.30	0.06	0.04	41	5.1	1.10
	23-28	E3	0.36	0.11	0.06	41	5.2	1.06
	28-37	Bt1	0.17	0.25	0.06	36	5.3	1.75
	37-46	Bt2	0.15	0.34	0.06	21	5.0	4.41
	46-65	C	0.02	0.13	0.03	9	4.8	4.10

* This is the typical pedon for the series in Macon County. For the description and location of the pedon, see the section "Soil Series and Their Morphology."

** This pedon is in an area of Goldsboro loamy fine sand, 0 to 2 percent slopes, frequently flooded. It is about 2,200 feet east and 1,200 feet north of the southwest corner of sec. 27, T. 15 N., R. 23 E.

*** This pedon is in an area of Sucarnoochee clay, 0 to 1 percent slopes, frequently flooded. It is not the typical pedon for this map unit. It is about 1,800 feet south and 180 feet west of the northeast corner of sec. 36, T. 15 N., R. 22 E.

Table 20.--Engineering Index Test Data

(These soils are the typical pedons for the series. See the section "Soil Series and Their Morphology" for the location and description of the pedons sampled. NP means nonplastic. Analyses performed by the Alabama Department of Highways and Transportation, Montgomery, Alabama.)

Soil name, report number, horizon, and depth in inches	Classification		Mechanical analysis					Liquid limit	Plas- ticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--				
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.005 mm			Maximum dry density	Optimum moisture
								Pct		*Lb/ft3*	*Pct*
Hannon											
(S91AL-087-6)											
Bt1----------7 to 16	A-7-6	CH	100	100	99.9	93.8	67.3	77.0	24.0	91.9	22.3
Bss1 & Bss2--16 to 26	A-7-5	CH	100	100	99.8	95.0	67.6	84.0	54.0	93.0	23.7
Bkss1--------26 to 40	A-7-6	CH	100	100	98.8	92.6	49.1	59.0	42.0	102.1	18.9
Bkss2--------40 to 59	A-7-6	CH	100	100	99.1	95.0	64.1	70.0	41.0	99.3	19.2
Toccoa											
(S89AL-087-1)											
Ap----------0 to 9	A-4(0)	SM	100	100	98.9	37.4	11.4	NP	NP	112.8	10.6
A----------9 to 17	A-4(0)	SM	100	100	98.7	45.8	15.6	NP	NP	113.6	13.0
C----------17 to 27	A-2-4(0)	SM	100	100	98.5	28.1	8.0	NP	NP	106.5	14.3
Ab----------27 to 37	A-4(0)	ML	100	100	99.9	62.6	24.0	26.0	3.0	109.3	14.1
C'1----------37 to 43	A-4(0)	SM	100	100	99.9	47.9	14.4	NP	NP	107.7	14.2
C'2----------43 to 59	A-4(1)	ML	100	100	99.5	70.8	30.4	28.0	5.0	110.0	14.6
C'3----------59 to 72	A-2-4(0)	SM	100	100	99.6	26.5	8.0	NP	NP	103.2	14.7
Uchee											
(S89AL-087-3)											
Bt1----------28 to 37	A-2-4(0)	CL-ML	98.3	94.9	69.2	28.6	20.4	18	5.0	130.6	9.1
Bt2----------37 to 46	A-2-6(1)	CL	97.9	93.8	64.2	35.2	30.8	38	19.0	117.1	13.0
C----------46 to 65	A-7-6(6)	CL	100	98.2	66.9	38.8	34.0	47	24.0	113.9	13.8

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Alaga	Thermic, coated Typic Quartzipsamments
Altavista	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Arents	Typic Udarents
Bama	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Bethera	Fine, mixed, semiactive, thermic Typic Paleaquults
Bigbee	Thermic, coated Typic Quartzipsamments
Blanton	Loamy, siliceous, subactive, thermic Grossarenic Paleudults
Bonifay	Loamy, siliceous, subactive, thermic Grossarenic Plinthic Paleudults
Bruno	Sandy, mixed, thermic Typic Udifluvents
Cahaba	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Compass	Coarse-loamy, siliceous, subactive, thermic Plinthic Paleudults
Conecuh	Fine, smectitic, thermic Vertic Hapludults
Cowarts	Fine-loamy, kaolinitic, thermic Typic Kanhapludults
Dogue	Fine, mixed, semiactive, thermic Aquic Hapludults
Eunola	Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults
Faunsdale	Fine, smectitic, thermic Aquic Hapluderts
Fluvaquents	Typic Fluvaquents
Goldsboro	Fine-loamy, siliceous, subactive, thermic Aquic Paleudults
Gritney	Fine, mixed, semiactive, thermic Aquic Hapludults
Hannon	Fine, smectitic, thermic Chromic Hapluderts
Kinston	Fine-loamy, siliceous, semiactive, acid, thermic Fluvaquentic Endoaquepts
Lucy	Loamy, kaolinitic, thermic Arenic Kandiudults
Luverne	Fine, mixed, semiactive, thermic Typic Hapludults
Lynchburg	Fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults
Malbis	Fine-loamy, siliceous, subactive, thermic Plinthic Paleudults
Marvyn	Fine-loamy, kaolinitic, thermic Typic Kanhapludults
Maytag	Fine, smectitic, thermic Oxyaquic Hapluderts
Mooreville	Fine-loamy, siliceous, active, thermic Fluvaquentic Dystrudepts
Myatt	Fine-loamy, siliceous, active, thermic Typic Endoaquults
Ocilla	Loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults
Oktibbeha	Very-fine, smectitic, thermic Chromic Dystruderts
Orangeburg	Fine-loamy, kaolinitic, thermic Typic Kandiudults
Pacolet	Fine, kaolinitic, thermic Typic Kanhapludults
Pelham	Loamy, siliceous, subactive, thermic Arenic Paleaquults
Red Bay	Fine-loamy, kaolinitic, thermic Rhodic Kandiudults
Riverview	Fine-loamy, mixed, active, thermic Fluventic Dystrudepts
Roanoke	Fine, mixed, semiactive, thermic Typic Endoaquults
Searcy	Fine, mixed, active, thermic Aquic Paleudalfs
Springhill	Fine-loamy, kaolinitic, thermic Typic Kanhapludults
Sucarnoochee	Fine, smectitic, thermic Chromic Epiaquerts
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrudepts
Toccoa	Coarse-loamy, mixed, semiactive, nonacid, thermic Typic Udifluvents
Troup	Loamy, kaolinitic, thermic Grossarenic Kandiudults
Uchee	Loamy, kaolinitic, thermic Arenic Kanhapludults
Udorthents	Typic Udorthents
Una	Fine, mixed, active, acid, thermic Typic Epiaquepts
Urbo	Fine, mixed, active, acid, thermic Vertic Epiaquepts
Vaiden	Very-fine, smectitic, thermic Aquic Dystruderts
Wagram	Loamy, kaolinitic, thermic Arenic Kandiudults

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