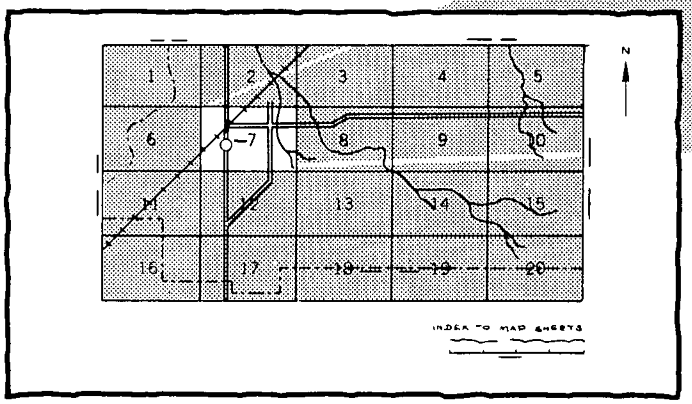
SOIL SURVEY OF

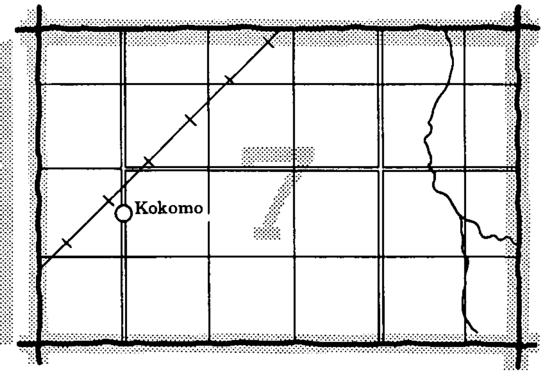
Brooks and Thomas Counties, Georgia

United States Department of Agriculture
Soil Conservation Service
In cooperation with
University of Georgia, College of Agriculture
Agricultural Experiment Stations

HOW TO USE

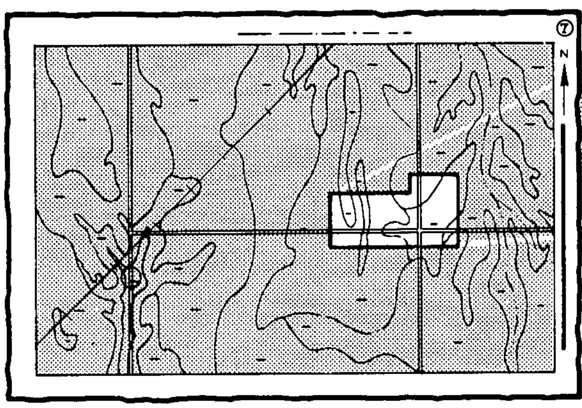
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

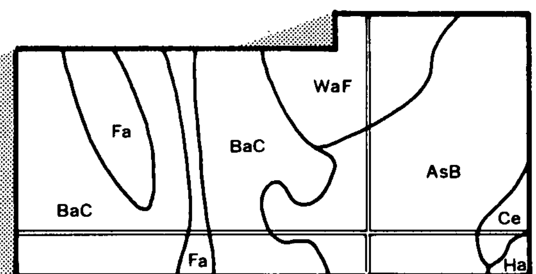




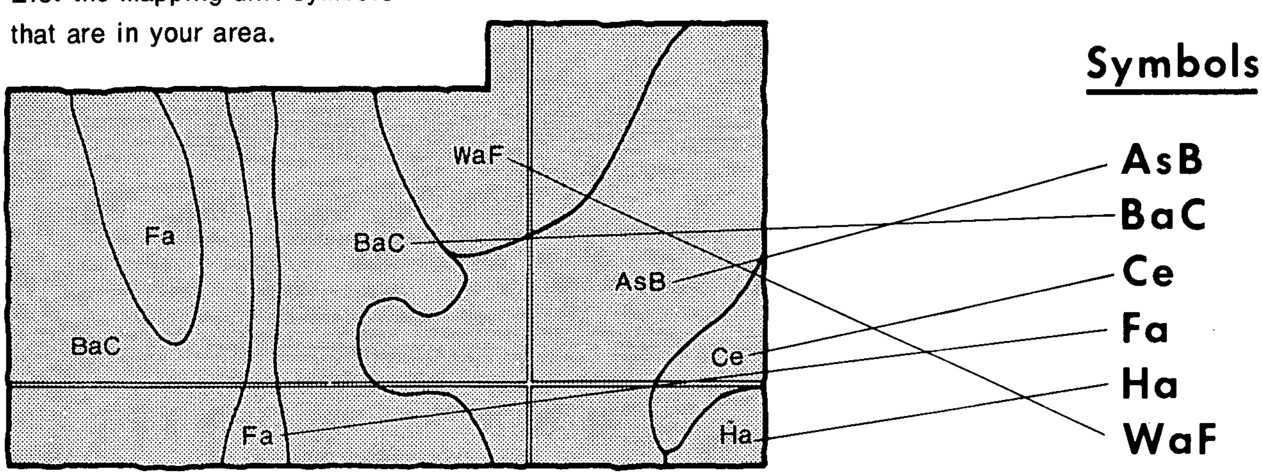
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



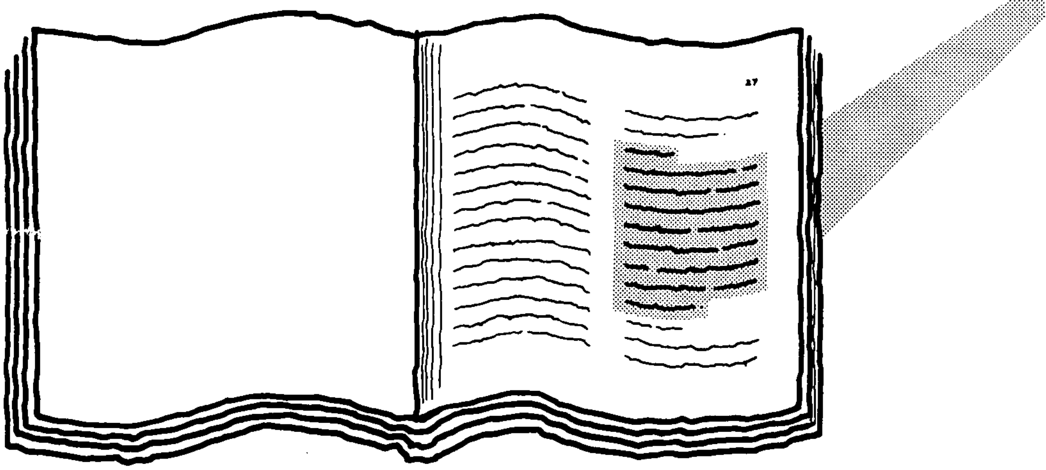


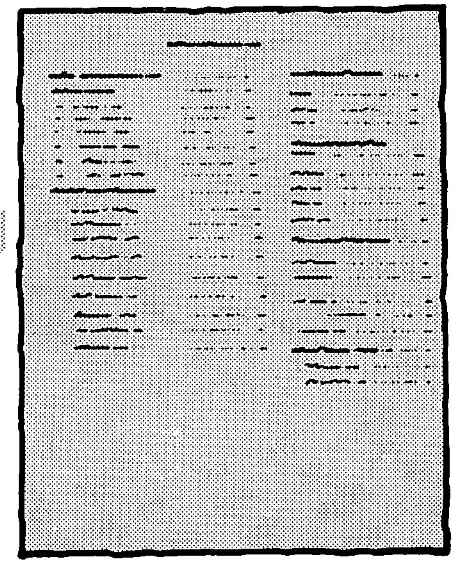
4. List the mapping unit symbols that are in your area.



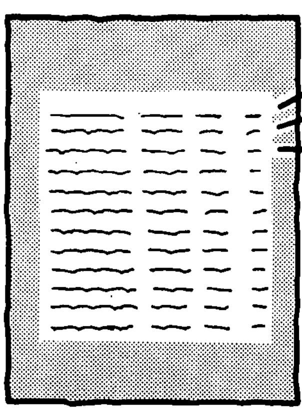
THIS SOIL SURVEY

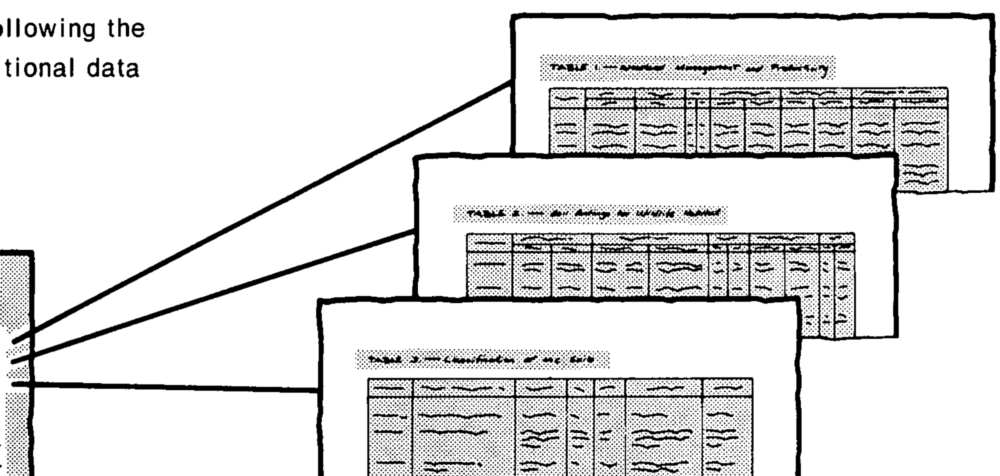
5. Turn to "Index to Soil Mapping Units" which lists the name of each mapping unit and the page where that mapping unit is described.





6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.





7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1971-75. Soil names and descriptions were approved in 1975. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the Soil Conservation Service and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Middle South Georgia Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps could cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Oats next to an improved bermudagrass pasture in a pecan orchard. The soil is Tifton loamy sand, 2 to 5 percent slopes.

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Issued May 1979

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Foreword

This soil survey contains much information useful in land-planning programs in Brooks and Thomas Counties. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

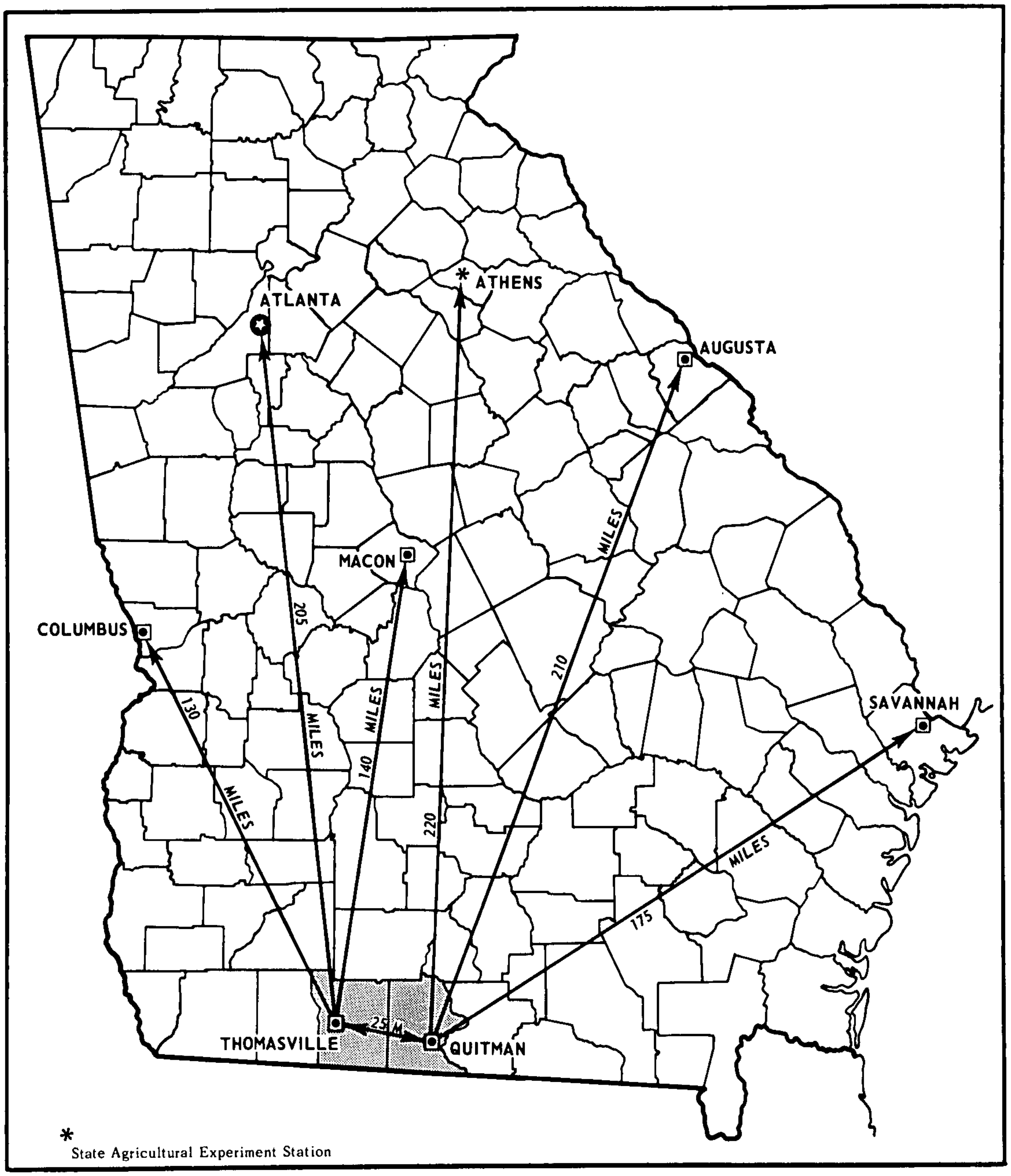
Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption 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 kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Dwight M. Treadway

Dwight M. Treadway
State Conservationist
Soil Conservation Service



Location of Brooks and Thomas Counties in Georgia.

SOIL SURVEY OF BROOKS AND THOMAS COUNTIES, GEORGIA

By John W. Calhoun, Soil Conservation Service

Soils surveyed by John W. Calhoun, Joe G. Stevens, and Ernest H. Smith, Soil Conservation Service

Winfield S. Carson, Richard H. Gilbert, Russell O. Neal, and Garnet J. Wood, Soil Conservation Service, assisted with the fieldwork

United States Department of Agriculture, Soil Conservation Service, in cooperation with University of Georgia, College of Agriculture, Agricultural Experiment Stations

BROOKS AND THOMAS COUNTIES are in the extreme southern part of Georgia. They cover an area of 660,224 acres, or 1,031.6 square miles. Brooks County occupies 313,920 acres, or 490.5 square miles. It has a population of 13,743. Quitman, the county seat, has a population of 4,818. Thomas County occupies 346,304 acres, or 541.1 square miles. It has a population of 34,562. Thomasville, the county seat, has a population of 18,155.

Brooks and Thomas Counties are in the Southern Coastal Plain physiographic province. The survey area is drained mainly by the Ochlockonee, Little, and Withlacoochee Rivers and their tributaries. The Little and Withlacoochee Rivers form the eastern boundary of Brooks County, and the Ochlockonee River is in the west-central part of Thomas County. Wards, Connell, Aucilla, and Cat Creeks and their tributaries are the main drainageways in the southern part of the survey area.

The landscape is nearly level to sloping and is dissected by numerous shallow streams. The topography is irregular and choppy in the extreme southern part of Brooks County and in the west-central and southern parts of Thomas County. The southern part of Brooks County has a few shallow bays or cypress ponds as large as 200 acres; they hold water for several months each year. Elevation ranges from 80 feet near the Withlacoochee River in the southeastern tip of Brooks County to 350 feet at Meigs in the northwestern part of Thomas County.

General nature of the counties

General information concerning the counties is given in this section. Climate, settlement, natural resources, and farming are discussed.

Climate

This section was prepared by the National Climatic Center, Asheville, North Carolina.

Brooks and Thomas Counties have long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. Only a rare cold wave occurs, and it moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year. Prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Thomasville, Georgia, for the period 1951-74. 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 53 degrees F, and the average daily minimum is 40 degrees. The lowest temperature on record, 7 degrees, occurred at Thomasville on January 30, 1966. In summer the average temperature is 80 degrees, and the average daily maximum is 91 degrees. The highest temperature, 104 degrees, was recorded on August 12, 1954.

Growing degree days, shown in table 1, are equivalent to "heat units." Beginning in spring, 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.

Of the total annual precipitation, 29 inches, or 58 percent, usually falls during the period April through September, which includes the growing season for most crops. Two years in 10, the April to September rainfall is less than 24 inches. The heaviest 1-day rainfall during the period of record was 8.99 inches at Thomasville on December 4, 1964. Thunderstorms number about 70 each year, and about 45 of them occur in summer.

Snowfall is rare. In 87 percent of the winters there is no measurable snowfall, and in 91 percent, the snowfall is less than 2 inches. The heaviest snowfall ever observed in 1 day was 3 inches.

The average relative humidity in midafternoon in spring is less than 50 percent; during the rest of the year it is about 55 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The percentage of possible sunshine is 60 percent in summer and 50 percent in winter. The prevailing winds are northerly. Average windspeed is highest, 9 miles per hour, in March.

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

Settlement

The English Crown obtained what is now Brooks and Thomas Counties by a treaty with Spain in 1763. Under an English grant, the area of these two counties became part of South Carolina; but after the American Revolution, the area was ceded to Georgia.

Brooks County was established by an act of the General Assembly of Georgia on December 11, 1858 (*4*). It was formed from Lowndes and Thomas Counties. The county was named for Preston S. Brooks, a Representative in the U. S. Congress from South Carolina, who was a noted defender of Southern rights. Quitman, the county seat, was established in 1859.

Thomas County was established by an act of the General Assembly of Georgia on December 28, 1825 (*5*). It was originally formed from Irwin and Decatur Counties, and part of Lowndes County was added in 1826. Parts of Thomas County were taken away and included in the formation of Colquitt County in 1856 and in the formation of Brooks County in 1858. A section was taken away in 1905 to form a part of Grady County. Thomas County was named for General Jett Thomas who was born in Virginia and migrated to Georgia. He was a noted builder and Indian fighter.

The survey area was originally occupied by Apalachee and Creek Indians. The first white settlers came mainly from North Carolina, South Carolina, Virginia, Maryland, and the older settlements in Georgia. Thomas Hill Bryan of North Carolina was the first settler in Thomas County.

Settlement of the two counties advanced slowly until the Seaboard Coastline Railroad was built in 1860. The population of Thomas County was 6,766 in 1840 and had increased to 10,766 by 1860. By 1900 the population was 31,076.

The development of the lumber and turpentine industries, which began about 1875, also promoted settlement. By 1890 there were many sawmills in both counties, and settlers from older, established parts of Georgia and from the Carolinas began to migrate to Brooks and Thomas Counties. Brooks County had a population of 11,927 in 1880 and a population of 23,832 in 1910.

As farm machinery came into use, farms increased in size but fewer people were needed to produce the crops. By 1970, the population of Brooks County had decreased to 13,743 and the population of Thomas County was only 34,562.

Brooks and Thomas Counties are mainly agricultural. Lumber, pulpwood, textiles, meat packing, feed and fertilizer, and dairy products are a few of the important industries.

The two counties have many ground transportation routes to local and out-of-state markets. Air transportation is also available. Several railroad companies and truck lines provide freight service to and from Thomasville and Quitman.

Natural resources

Soil is the most important resource in Brooks and Thomas Counties. Well-managed soils produce abundant crops for market, including livestock and wood crops. There are many timber plantations throughout the survey area, but mostly in the southern part of Thomas County. The two counties have seven lumber mills, one crate and basket company, and five commercial nurseries.

Deep wells drilled into the Suwannee Limestone strata produce abundant water for Brooks and Thomas Counties. These wells range from 200 to 500 feet in depth. There are also many farm ponds that are used for watering livestock and for irrigation and recreation. The Little, Withlacoochee, and Ochlockonee Rivers also provide water.

Mineral production is important in the two counties. Sand is mined commercially in both counties, but the largest company that produces washed sand and ground silica is in Thomas County. Three companies that mine fullers' earth are near Ochlockonee and Meigs.

Farming

Agricultural development in Brooks and Thomas Counties was slight until after 1830. The Census of 1840 indicates that cotton, corn, potatoes, rice, oats, and sugarcane were the principal crops and that peas, beans, and potatoes were the principal vegetable crops. Tobacco was introduced at that time. Cattle, hogs, and sheep were raised. Cultivated fields were fenced, but all other land was considered open range for livestock.

Improved varieties, soil selection, and improved cultivation methods were important factors in the early agricultural development. Cotton was grown and produced best on Tifton loamy sand and Orangeburg loamy sand. After 1899 larger amounts of commercial fertilizer were used to increase crop yields.

Production of vegetable and fruit crops was important from the beginning. In the early 1900's Thomas County was the largest watermelon-producing county in the United States. Under average seasonal conditions, 1,000 carloads of watermelons were shipped annually to northern markets. Cantaloups, cucumbers, Irish potatoes, peaches, and pecans were also important crops. The Georgia State Farmers Market at Thomasville became the largest produce auction market in the country. This market is used by farmers in Georgia, Alabama, and northern Florida.

Tobacco came on slowly as an important crop. Soil selection, improved varieties, proper fertilization, and the use of insecticides have helped to make tobacco an important crop in the two counties. Quitman and Thomasville are important tobacco markets.

The economic depression in the early 1930's led to a misuse of the land, which increased soil erosion on most sloping fields in the survey area. Many fields were abandoned because crop yields were low. Changes in land ownership were common, and soil fertility was not maintained in most places. There was definite need for protection against land depletion.

The enactment of the Soil Conservation District Legislation in 1937 by the State of Georgia was supported by the leading farmers in Brooks and Thomas Counties. The Middle South Georgia Soil and Water Conservation District was organized in 1939, and Brooks and Thomas Counties were two of the nine counties included in the District. Farmers in these counties recognized the need for soil conservation to prevent soil erosion and improve or maintain fertility. Land use changes were needed in places. Terraces, grassed waterways, improved pastures, and ponds were installed on many farms to control erosion and increase productivity. The land was used according to its capability and treated in accordance with its needs. The soil survey maps made by the Soil Conservation Service were the basis for determining the land capability of each acre on the farm. Many sloping, seriously eroded, once-cultivated fields were put in grass or trees.

According to the 1969 U.S. Census of Agriculture, farms covered 213,587 acres, or 68.0 percent, of Brooks County and 241,025 acres, or 69.6 percent, of Thomas County. These counties produce large acreages of high-yielding corn, peanuts, tobacco, soybeans, cotton, hay, peaches, pecans, and truck crops. The acreage of improved bermudagrass and bahiagrass pasture is increasing.

With the increased use of farm machinery and improved tillage methods, the number of farms has decreased but the average size has increased. In 1964, Brooks County had 925 farms that averaged 238 acres. By 1969, the number of farms had decreased to 766 and the average size had increased to 278 acres. In 1964, Thomas County had 884 farms that averaged 320 acres. By 1969, the number of farms had decreased to 754 and the average size was 319 acres. The average farm in Thomas County in 1975 was estimated to be 350 acres.

Sales from livestock and poultry and their products amount to about 45 percent of the total farm income in the two counties. The farm income from sale of livestock and poultry and their products increased from 5.6 million dollars in 1964 to nearly 10.4 million dollars in 1969. There are three livestock markets in the two counties.

The sale of forest products is an important part of the farm income. Sales of forest products doubled in Brooks County between 1964 and 1969.

Many of the soils are well suited to sprinkler irrigation. The amount of land under irrigation increased from 1,835 acres in 1964 to 2,855 acres in 1969. Most of the irrigated land is used for tobacco and truck crops.

As indicated in table 6, about 239,000 acres in the survey area have wetness limitations. By 1969 about 24,536 acres had been improved by artificial drainage.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it 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 kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. In the following pages the potential of each map unit is discussed, in relation to that of other map units, for major land uses. Soil properties that pose limitations to the use are indicated.

Brooks County

Nearly level soils on bottom lands, on stream terraces, or on low uplands

Two map units in Brooks County consist of nearly level, poorly drained soils on flood plains, terraces, and low uplands adjacent to major streams. Slopes range from 0 to 2 percent. The soils have a grayish, sandy surface layer and a grayish, mottled, sandy or loamy subsoil or underlying layers. They are mainly along Okapilco Creek and the Withlacoochee and Little Rivers.

1. Osier-Pelham-Rains

Nearly level soils that have predominantly a sandy surface layer and loamy or sandy underlying layers, on bottom lands and on stream terraces

This map unit consists of poorly drained soils on long, narrow bottom lands and on irregularly shaped stream terraces. Most slopes are less than 1 percent. Areas are primarily adjacent to the Little and Withlacoochee Rivers and Okapilco and Piscola Creeks.

This map unit makes up about 11 percent of Brooks County. Osier soils make up about 24 percent of the unit; Pelham soils, about 16 percent; Rains soils, about 15 percent; and minor soils, about 45 percent.

Osier soils are on bottom lands. Typically, the surface layer is dark gray loamy fine sand about 4 inches thick. Below the surface layer to a depth of about 65 inches or more are layers of grayish sand or fine sand mottled dominantly with brown.

Pelham soils are on bottom lands. Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer is light brownish gray loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of 64 inches or more; it is gray sandy clay loam mottled with predominantly yellowish brown in the middle and lower parts.

Rains soils are on stream terraces. Typically, the surface layer is very dark gray loamy sand to a depth of 5 inches. The subsurface layer is light brownish gray loamy sand that extends to a depth of 16 inches. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with yellowish brown in the upper several inches and gray sandy clay loam mottled with yellowish brown, yellowish red, and strong brown in the lower part.

The minor soils are in the Bayboro, Coxville, Myatt, Ocilla, Ousley, and Wahee series. Bayboro soils are very poorly drained and are in depressions and low, flat areas. Coxville and Myatt soils are poorly drained and are on bottom lands. Ocilla and Wahee soils are somewhat poorly drained and are on stream terraces. Ousley soils are moderately well drained and are on low stream terraces.

The soils in this map unit are used mainly as woodland. Sweetgum, blackgum, and water oak are the dominant trees, but slash pine and loblolly pine are grown in a few places. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management of the plants commonly grown is control of flooding. Because of the flooding hazard and the high seasonal water table, these soils have severe limitations for most nonfarm uses.

2. Alapaha-Mascotte

Nearly level soils that have a sandy surface layer and loamy underlying layers, in depressions, in drainageways, and in flat areas of low uplands

This map unit consists of poorly drained soils in drainageways, depressions, and slightly higher lying, flat areas. Most slopes are less than 1 percent. Most areas are in the east-central part of Brooks County, and a small area is about 5 miles south of Quitman.

This map unit makes up about 4 percent of Brooks County. Alapaha soils make up about 45 percent of the unit; Mascotte soils, about 15 percent; and minor soils, about 40 percent.

Alapaha soils are in depressions and drainageways. Typically, the surface layer is dark gray loamy sand about

5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray in the upper part mottled with light brownish gray, and it is light gray in the lower part mottled with light brownish gray and very pale brown. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray mottled with brownish yellow in the upper part, and it is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches; it makes up 5 to 15 percent of the lower part of the subsoil.

Mascotte soils are in flat areas. Typically, the surface layer is very dark gray sand about 4 inches thick. The subsurface layer is light gray sand that extends to a depth of 14 inches. This is underlain by an organic hardpan of sand that extends to a depth of 23 inches. This layer is dark reddish brown in the upper part and brown in the lower part. Below that, pale brown sand mottled with yellowish brown and very pale brown extends to a depth of 35 inches, and gray sandy clay loam mottled with yellowish brown and strong brown extends to a depth of 65 inches.

The minor soils are in the Chipley, Lakeland, and Olustee series. Chipley soils are moderately well drained and are on low upland flats that are higher on the landscape than is common for the Olustee soils. Lakeland soils are excessively drained. They are on ridgetops and hillsides in slightly higher positions than Chipley soils. Olustee soils are poorly drained and are on low upland flats.

The soils in this map unit are used mainly as woodland. Sweetgum, blackgum, water oak, slash pine, and longleaf pine are the dominant trees, but sand pine and loblolly pine are grown in a few places. The main concerns in management of the plants commonly grown are control of flooding and overcoming wetness. Wetness is a severe limitation for most nonfarm uses.

Nearly level to gently sloping soils on uplands, along drainageways, in depressions, or on flats

Four map units in Brooks County consist of nearly level, very gently sloping, or sloping soils. Most areas are broad and smooth. Slopes are mostly 0 to 5 percent but range to 8 percent in places. The soils on higher parts of the landscape are mostly well drained, but they are excessively drained in some places. They have a brownish or grayish, sandy or loamy surface layer and a mainly brownish, loamy subsoil that is mottled in the lower part, or they have yellowish, sandy underlying layers. The soils on lower parts of the landscape are somewhat poorly drained or poorly drained. They have a grayish, sandy surface layer and a grayish or brownish, loamy mottled subsoil.

3. Tifton-Carnegie-Alapaha

Very gently sloping and gently sloping soils that have a sandy or loamy surface layer and loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, along drainageways of uplands

This map unit consists of well drained soils on broad to narrow ridgetops and short irregular hillsides and of poorly drained soils along the drainageways and small, shallow streams that dissect the hillsides. The soils are on uplands. Most areas are rough and choppy, and some are eroded. Slopes range from 0 to 8 percent. Most of this unit is near Pavo.

This map unit makes up about 5 percent of Brooks County. Tifton soils make up about 40 percent of the unit; Carnegie soils, about 30 percent; Alapaha soils, about 15 percent; and minor soils, about 15 percent.

Tifton soils are well drained and are on broad ridgetops of the uplands. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are common throughout the soil (fig. 1).

Carnegie soils are well drained and are on narrow ridgetops and hillsides of the uplands. Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is strong brown in the upper part, strong brown mottled with red and light gray in the middle part, and red with yellowish brown and gray clay films in the lower part. Plinthite is at a depth of about 21 inches and makes up 5 to 15 percent of the middle and lower parts. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil.

Alapaha soils are poorly drained and are along drainageways of the uplands. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

The minor soils are in the Dothan, Esto, Leefield, and Nankin series. Dothan, Esto, and Nankin soils are well drained and are on ridgetops and hillsides. Leefield soils are somewhat poorly drained and are on low flats close to drainageways.

This map unit is used mainly for the production of pulpwood and lumber and for pasture. Corn, cotton, and peanuts are grown in a few places. Raising beef cattle and raising hogs are the main livestock enterprises. The main concerns in management of the plants commonly grown are controlling erosion on the Carnegie and Tifton soils and overcoming wetness on the Alapaha soils. Wetness and flooding of the Alapaha soils are severe limitations for most nonfarm uses.

4. Leefield-Alapaha-Fuquay

Nearly level or very gently sloping soils that have a sandy surface layer and loamy underlying layers, in depressions and in drainageways of uplands, and in flat areas and on ridgetops of low uplands

This map unit consists of soils in broad, nearly level areas and on low ridgetops separated by soils in depressions and along drainageways. There are numerous intermittent ponds ranging from 1 acre to 10 acres in size throughout the map unit. Slopes range from 0 to 5 percent. Areas of this unit are scattered throughout Brooks County.

This map unit makes up about 6 percent of Brooks County. Leefield soils make up about 50 percent of the unit; Alapaha soils, about 20 percent; Fuquay soils, about 15 percent; and minor soils, about 15 percent.

Leefield soils are somewhat poorly drained and are in low, flat areas. Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer extends to a depth of 28 inches; it is light brownish gray loamy sand mottled with pale yellow, grayish brown, and yellowish brown. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is light yellowish brown mottled with light gray and yellowish brown in the upper part; light yellowish brown mottled with light gray, yellowish brown, and yellowish red in the middle part; and mottled light gray, brownish yellow, and red in the lower part. Plinthite is at a depth of about 32 inches and makes up 5 to 10 percent of the lower part of the subsoil.

Alapaha soils are poorly drained and are in depressions and along drainageways. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more; it is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

Fuquay soils are well drained and are on low ridgetops on uplands. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is in the lower part at a depth of about 50 inches; plinthite content ranges from 10 to 15 percent. Nodules of ironstone are between depths of 36 and 48 inches.

The minor soils are Dothan, Mascotte, Stilson, and Tifton soils. Dothan and Tifton soils are well drained and are on upland ridgetops. Mascotte soils are poorly drained and are in low, flat areas close to depressions. Stilson soils are moderately well drained and are in low, smooth flat areas.

This map unit is used mainly for the production of pulpwood, lumber, and pasture. Corn, tobacco, peanuts, and soybeans are grown in some areas. Raising beef cattle and raising hogs are the main livestock enterprises. Most streams in the area are not free flowing. The main concern of management for the plants commonly grown is overcoming wetness in most places, but low available water capacity is a concern on Fuquay soils. Because of wetness, most of this map unit has severe limitations for most nonfarm uses.

5. Tifton-Alapaha-Dothan

Nearly level to gently sloping soils that have a sandy surface layer and loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, in depressions and along drainageways of uplands

This map unit consists of soils in depressions and on ridgetops and hillsides of uplands dissected by intermittent drainageways. Most streams originate within the unit. Slopes range from 0 to 8 percent. These soils occur throughout Brooks County except the southern part.

This map unit makes up about 54 percent of Brooks County. Tifton soils make up about 50 percent of the unit; Alapaha soils, about 24 percent; Dothan soils, about 11 percent; and minor soils, about 15 percent.

Tifton soils are well drained and are on ridgetops of the uplands. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and makes up 10 to 25 percent of the lower part of the subsoil. Nodules of ironstone are common throughout the soil.

Alapaha soils are poorly drained and are in depressions and along drainageways of the uplands. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more; it is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

Dothan soils are well drained and are on ridgetops and smooth hillsides. Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite is at a depth of 42 inches and ranges from 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Minor soils are in the Carnegie, Fuquay, Grady, Leefield, Nankin, and Stilson series. Carnegie, Fuquay, and Nankin soils are well drained and are on ridgetops and hillsides. Grady soils are poorly drained and are in depressions. Leefield soils are somewhat poorly drained and are on flats that are somewhat higher lying than the nearby depressions and drainageways. Stilson soils are moderately well drained and are in low, smooth areas.

This map unit is used mainly for corn, peanuts, cotton, tobacco, soybeans, peaches, pecans, and truck crops. Also, the production of pulpwood, lumber, and pasture are important. Raising beef cattle and raising hogs are the main livestock enterprises. The main concerns of management for plants commonly grown are controlling erosion on Tifton and Dothan soils and overcoming wetness on the Alapaha soils. Because of wetness, the Alapaha soils have severe limitations for most nonfarm uses.

6. Lakeland-Alapaha-Fuquay

Nearly level or very gently sloping soils that have a sandy surface layer and sandy or loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, in depressions and in drainageways of uplands

This map unit consists of nearly level soils on broad ridgetops and very gently sloping soils on ridgetops and hillsides that are separated by nearly level soils in narrow drainageways and depressions. A few shallow ponds are in the map unit. Slopes range from 0 to 5 percent. Most areas of this map unit are near the flood plains of the Little and Withlacoochee Rivers in the eastern part of Brooks County.

These soils make up about 3 percent of Brooks County. Lakeland soils make up about 45 percent of the unit; Alapaha soils, about 25 percent; Fuquay soils, about 15 percent; and minor soils, about 15 percent.

Lakeland soils are excessively drained and are on broad ridgetops of the uplands. Typically, the surface layer is very dark grayish brown sand about 4 inches thick. The underlying layers to a depth of 80 inches are sand; the upper layer is yellowish brown, the middle layers are light yellowish brown, and the lower layer is brownish yellow with very pale brown splotches.

Alapaha soils are poorly drained and are along drainageways and in depressions. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more; it is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and ranges from 5 to 15 percent in the lower part of the subsoil.

Fuquay soils are well drained and are on broad ridgetops and hillsides. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are between depths of about 36 and 48 inches.

The minor soils in this map unit are in the Chipley, Leefield, and Stilson series. Chipley soils are moderately well drained and are on low flats. Leefield soils are somewhat poorly drained and are on low flats next to depressions. Stilson soils are moderately well drained and are in low, smooth, flat areas.

This unit is used mainly for the production of pulpwood and lumber. Corn, peanuts, and soybeans are grown in some places, and a few areas are used for pasture. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management of the commonly grown plants is the low available water capacity of Lakeland and Fuquay soils. Wetness is the main limitation on Alapaha soils. It is a severe limitation for most nonfarm uses.

Nearly level to sloping soils on uplands

These three map units in Brooks County consist of well drained soils on uplands. These soils are nearly level to very gently sloping on convex ridgetops and gently sloping to sloping on somewhat complex hillsides. Slopes are mainly 2 to 5 percent, but range from 0 to 12 percent. The soils have a mainly brownish, sandy surface layer and a reddish or brownish, loamy subsoil.

7. Orangeburg-Fuquay-Lucy

Nearly level to sloping soils that have a sandy surface layer and loamy underlying layers, on uplands

This map unit consists of well drained soils on broad, smooth ridgetops and irregular or rolling, choppy or convex hillsides. A few areas are rough, and some are eroded. Many large ponds and bays are in the area. Slopes range up to 12 percent but are dominantly more than 2 percent. This unit is in the southwestern part of Brooks County.

This map unit makes up about 8 percent of Brooks County. Orangeburg soils make up about 30 percent of the unit; Fuquay soils, about 28 percent; Lucy soils, about 12 percent; and minor soils, about 30 percent.

Orangeburg soils are on the higher lying ridgetops and irregular, choppy hillsides. Typically, the surface layer is loamy sand about 13 inches thick. It is dark grayish brown in the upper part and brown in the lower part. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy loam in the upper part and is red sandy clay loam in the lower part. It is mottled with yellowish brown in the extreme lower part.

Fuquay soils are on broad, smooth ridgetops. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches; it is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and ranges from 10 to 15 percent in the lower part of the subsoil. Nodules of ironstone are between depths of about 36 and 48 inches.

Lucy soils are on ridgetops and rolling and convex hillsides. Typically, the surface layer is grayish brown loamy sand about 7 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is brown in the upper part and strong brown in the lower part. The subsoil extends to a depth of 65 inches. It is red sandy loam in the upper part and red sandy clay loam below that.

The minor soils are the Alapaha, Dasher, Faceville, and Norfolk soils. Alapaha soils are poorly drained and are in drainageways and depressions. Dasher soils are very poorly drained and are in depressions. Faceville and Norfolk soils are well drained and are on ridgetops and hillsides.

This map unit is used mainly for the production of pulpwood and lumber. Corn, peanuts, and soybeans are grown, and some areas are used for pasture. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management of the commonly grown plants is control of erosion on the Orangeburg soil. Low available water capacity is the main limitation on Fuquay and Lucy soils. This map unit is not limited for most nonfarm uses except on some of the sloping, irregular, and choppy hillsides.

8. Orangeburg-Faceville-Tifton

Very gently sloping to sloping soils that have a loamy or sandy surface layer and loamy or clayey underlying layers, on uplands

This map unit consists of well drained soils mainly on broad to narrow smooth ridgetops and on irregular, choppy, or convex hillsides that are eroded in most places. Slopes range from 2 to 12 percent. Areas of this unit occur throughout the western part of the county, but the largest area is in the southwestern part.

This map unit occupies about 2 percent of Brooks County. Orangeburg soils make up about 30 percent of the unit; Faceville soils, about 28 percent; Tifton soils, about 25 percent; and minor soils, about 17 percent.

Orangeburg soils are on broad, smooth ridgetops and irregular, convex hillsides. Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish red sandy loam in the upper part and yellowish red sandy clay loam below that. It is mottled with brownish yellow in the extreme lower part.

Faceville soils are on narrow, smooth ridgetops and irregular, choppy hillsides. Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. It is red in the upper part, red mottled with brownish yellow in the middle part, and red mottled with predominantly brownish yellow in the lower part. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Tifton soils are on broad ridgetops and very gently sloping hillsides. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are common throughout the soil.

The minor soils are in the Lucy, Norfolk, and Ochlockonee series. Lucy and Norfolk soils are well drained and are on ridgetops and hillsides. Ochlockonee soils are well drained and are in drainageways on uplands.

This map unit is used mainly for the production of pulpwood and lumber. Corn, peanuts, and soybeans are grown, and some areas are used for pasture. Raising hogs and raising beef cattle are the main livestock enterprises. The main concern in management of the commonly grown plants is controlling erosion. Most of this unit has moderate limitations for most nonfarm uses mainly because of the sloping, irregular, and choppy landscape.

9. Dothan-Fuquay-Nankin

Nearly level to gently sloping soils that have a loamy or sandy surface layer and loamy or clayey underlying layers, on uplands

This map unit consists of well drained soils on broad, smooth and convex to irregular or undulating ridgetops and irregular choppy hillsides. Several large intermittent ponds are included. Slopes range from 0 to 8 percent. This unit is in the southeastern part of Brooks County.

This map unit makes up about 7 percent of Brooks County. Dothan soils make up about 30 percent of the unit; Fuquay soils, about 28 percent; Nankin soils, about 26 percent; and minor soils, about 16 percent.

Dothan soils are on broad, smooth, and convex ridgetops and hillsides. Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite is at a depth of 42 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Fuquay soils are on broad, smooth, and convex ridgetops. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are between depths of 36 and 48 inches.

Nankin soils are on irregular to undulating ridgetops and irregular, choppy hillsides. Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil extends to a depth of 55 inches. It is strong brown sandy clay loam in the upper part, yellowish red sandy clay mottled with yellowish red and yellowish brown in the middle part, and mottled yellowish red, light yellowish brown, light gray, and red sandy clay loam below that. It is underlain by mottled gray and very pale brown sandy clay loam to a depth of 65 inches or more. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil.

The minor soils are in the Alapaha, Lakeland, Leefield, Lucy, and Orangeburg series. Alapaha soils are poorly drained and are in depressions and drainageways. Lakeland soils are excessively drained and are on ridgetops and hillsides. Leefield soils are somewhat poorly drained and are on flats that are slightly higher lying than the nearby drainageways. Lucy and Orangeburg soils are well drained and are on ridgetops and hillsides.

This map unit is used mainly for the production of pulpwood and lumber, but corn, peanuts, soybeans, and pasture are also important crops. Raising beef cattle and raising hogs are the main livestock enterprises. The main concerns in management of the commonly grown plants are controlling erosion on Dothan and Nankin soils and the low available water capacity of Fuquay soils. Limitations for most nonfarm uses are moderate.

Thomas County

Nearly level soils on bottom lands and on stream terraces or on low uplands

This map unit consists of nearly level, poorly drained soils on flood plains and somewhat poorly drained soils on the adjacent terraces. Slopes range from 0 to 2 percent. The soils have a grayish or brownish, sandy surface layer and a grayish or brownish, mottled sandy or loamy subsoil or underlying layers. They are mainly along the major streams throughout the county.

1. Osier-Pelham-Ocilla

Nearly level soils that have predominantly a sandy surface layer and loamy or sandy underlying layers, on bottom lands and on stream terraces

This map unit consists of poorly drained soils on long, narrow bottom lands and somewhat poorly drained soils on irregularly shaped stream terraces. Most slopes are less than 1 percent. Areas are mainly adjacent to the Ochlockonee River and Aucilla, Barnetts, and Big Creeks.

This map unit makes up about 8 percent of Thomas County. Osier soils make up about 30 percent of the unit; Pelham soils, about 20 percent; Ocilla soils, about 15 percent; and minor soils, about 35 percent.

Osier soils are poorly drained and are on bottom lands. Typically, the surface layer is dark gray loamy fine sand about 4 inches thick. Below this to a depth of about 65 inches or more are layers of grayish sand or fine sand mottled dominantly with brown.

Pelham soils are poorly drained and are on bottom lands. Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer is light brownish gray loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of 64 inches or more. It is gray sandy clay loam mottled with predominantly yellowish brown in the middle and lower parts.

Ocilla soils are somewhat poorly drained and are on stream terraces. Typically, these soils have a surface layer of very dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 28 inches; it is pale brown mottled with brownish gray in the upper part and pale yellow mottled with light brownish gray below. The subsoil extends to a depth of 65 inches; it is light yellowish brown sandy loam mottled with light gray and yellowish brown in the upper part, light yellowish brown sandy clay loam mottled with light gray and strong brown in the middle part, and olive yellow sandy clay loam mottled with light gray and strong brown in the lower part.

The minor soils are in the Bayboro, Coxville, Ousley, Rains, and Wahee series. Bayboro soils are very poorly drained and are in depressions and in low, flat areas. Coxville soils are poorly drained and are on bottom lands. Ousley soils are moderately well drained and are on low stream terraces. Rains soils are poorly drained and are on flats and in slight depressions of stream terraces. Wahee soils are somewhat poorly drained and are on stream terraces.

The soils in this map unit are used primarily as woodland. Sweetgum, blackgum, and water oak are the dominant trees, but slash pine and loblolly pine are grown in a few places. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management of the plants commonly grown is controlling flooding. The flooding hazard and high seasonal water table are severe limitations for most nonfarm uses.

Nearly level to gently sloping soils on uplands, along drainageways, in depressions, or on flats

Four map units in Thomas County consist of nearly level, very gently sloping, or gently sloping soils. Most areas are broad and smooth. Slopes are mostly 0 to 5 percent but range to 8 percent in places. The soils on the higher parts of the landscape are mostly well drained but are excessively drained in some places. They have a brownish or grayish, sandy or loamy surface layer and a mainly brownish, loamy subsoil that is mottled in the lower part. In places they have yellowish, sandy underlying layers. The soils on lower parts of the landscape are somewhat poorly drained or poorly drained. They have a grayish, sandy surface layer and a grayish or brownish, loamy mottled subsoil.

2. Tifton-Carnegie-Alapaha

Very gently sloping and gently sloping soils that have a sandy or loamy surface layer and loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, along drainageways of uplands

This map unit consists of well drained soils on broad to narrow ridgetops and short irregular hillsides and poorly drained soils in drainageways and along small, shallow streams that dissect the hillsides. The soils are on uplands. Most areas are rough and choppy, and some are eroded. Slopes range from 0 to 8 percent. Most areas are east and south of Meigs, Georgia, and in the vicinity of Ochlockonee, Georgia.

This map unit makes up about 5 percent of Thomas County. Tifton soils make up about 40 percent of the unit; Carnegie soils, about 35 percent; Alapaha soils, about 15 percent; and minor soils, about 10 percent.

Tifton soils are well drained and are on broad ridgetops of the uplands. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are common throughout the soil.

Carnegie soils are well drained and are on narrow ridgetops and hillsides of the uplands. Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil is sandy clay loam that extends to a depth of 65 inches or more; it is strong brown in the upper part, strong brown mottled with red and light gray in the middle part, and red with yellowish brown and gray clay films in the lower part. Plinthite is at a depth of about 21 inches and makes up 5 to 15 percent of the middle and lower parts of the subsoil. Nodules of ironstone are in the surface layer and upper and middle parts of the subsoil.

Alapaha soils are poorly drained and are along drainageways of the uplands. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more; it is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

Minor soils are in the Esto and Leefield series. Esto soils are well drained and are on ridgetops or hillsides. Leefield soils are somewhat poorly drained and are on low flats close to drainageways.

This map unit is used mainly for production of pulpwood, lumber, and pasture. There are several fuller's earth mines in the area. Corn, cotton, and peanuts are grown in a few places. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management of the plants commonly grown is controlling erosion on the Carnegie and Tifton soils and overcoming wetness on the Alapaha soils. Wetness and flooding of the Alapaha soils are severe limitations for most nonfarm uses.

3. Leefield-Alapaha-Fuquay

Nearly level or very gently sloping soils that have a sandy surface layer and loamy underlying layers, in depressions and drainageways of uplands, and in flat areas and on ridgetops of low uplands

In this map unit, soils in broad, nearly level areas and on low ridgetops are separated by soils in depressions and along drainageways. There are numerous intermittent ponds ranging in size from 1 acre to 10 acres. Slopes range from 0 to 5 percent. Most areas are east and northeast of Coolidge and Merrillville.

This map unit makes up about 11 percent of Thomas County. Leefield soils make up about 45 percent of the unit; Alapaha soils, about 25 percent; Fuquay soils, about 15 percent; and minor soils, about 15 percent.

Leefield soils are somewhat poorly drained and are in low, flat areas. Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer extends to a depth of 28 inches; it is light brownish gray loamy sand mottled with pale yellow, grayish brown, and yellowish brown. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is light yellowish brown mottled with light gray and yellowish brown in the upper part; light yellowish brown mottled with light gray, yellowish brown, and yellowish red in the middle part; and mottled light gray, brownish yellow, and red in the lower part. Plinthite is at a depth of about 32 inches; it makes up 5 to 10 percent of the lower part of the subsoil.

Alapaha soils are poorly drained and are in depressions and along drainageways. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray mottled with brownish yellow in the upper part and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

Fuquay soils are well drained and are on low ridgetops on uplands. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are between depths of about 36 and 48 inches.

The minor soils are in the Dothan, Mascotte, and Stilson series. Dothan soils are well drained and are on upland ridgetops. Mascotte soils are poorly drained and are in low, flat areas close to depressions. Stilson soils are moderately well drained and are in low, smooth, flat areas.

This map unit is used mainly for the production of pulpwood and lumber. Corn, tobacco, peanuts, and soybeans are commonly grown. Pasture is grown in places. Raising beef cattle and raising hogs are the main livestock enterprises. Most streams are not free flowing. The main concern in management of the plants commonly grown is overcoming wetness in most areas. The low available water capacity of Fuquay soils is also a concern. Wetness is a severe limitation for most nonfarm uses.

4. Tifton-Alapaha-Dothan

Nearly level to gently sloping soils that have a sandy surface layer and loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, in depressions and along drainageways of uplands

This map unit consists of soils in depressions and on ridgetops and hillsides of uplands dissected by intermittent drainageways. Most of its streams originate within the unit. Slopes range from 0 to 8 percent. This unit occurs throughout Thomas County except the southern part.

This map unit makes up about 37 percent of Thomas County. Tifton soils make up about 49 percent of the unit; Alapaha soils, about 24 percent; Dothan soils, about 10 percent; and minor soils, about 17 percent.

Tifton soils are well drained and are on ridgetops of the uplands. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are common throughout the soil.

Alapaha soils are poorly drained and are in depressions and along drainageways of the uplands. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray mottled with brownish yellow in the upper part, and it is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and ranges from 5 to 15 percent in the lower part of the subsoil.

Dothan soils are well drained and are on ridgetops and smooth hillsides. Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite is at a depth of 42 inches and ranges from 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Minor soils are in the Carnegie, Fuquay, Grady, Lakeland, Nankin, and Stilson series. Carnegie, Fuquay, and Nankin soils are well drained and are on ridgetops and hillsides. Grady soils are poorly drained and are in depressions. Lakeland soils are excessively drained and are on ridgetops and hillsides. Leefield soils are somewhat poorly drained and are on flats that are somewhat higher lying than the nearby depressions and drainageways. Stilson soils are moderately well drained and are in low, smooth, flat areas.

This map unit is used mainly for corn, peanuts (fig. 2), cotton, tobacco, soybeans, peaches, pecans, and truck crops. Also, the production of pulpwood, lumber, and pasture are important. Raising beef cattle and raising hogs are the main livestock enterprises. The main concerns in management of the plants commonly grown are controlling erosion on Tifton and Dothan soils and overcoming wetness on the Alapaha soils. Wetness of the Alapaha soils is a severe limitation for most nonfarm uses.

5. Lakeland-Alapaha-Fuquay

Nearly level or very gently sloping soils that have a sandy surface layer and sandy or loamy underlying layers, on uplands; and nearly level soils that have a sandy surface layer and loamy underlying layers, in depressions and in drainageways of uplands

In this map unit, nearly level soils on broad ridgetops and very gently sloping soils on ridgetops and hillsides are separated by nearly level soils in narrow drainageways and depressions. There are a few shallow ponds. Slopes range from 0 to 5 percent. Most areas are near the flood plains of the Ochlockonee River and Barnetts Creek.

This map unit makes up about 1 percent of Thomas County. Lakeland soils make up about 70 percent of the unit; Alapaha soils, about 15 percent; Fuquay soils, about 10 percent; and minor soils, about 5 percent.

Lakeland soils are excessively drained and are on broad ridgetops on the uplands. Typically, the surface layer is very dark grayish brown sand about 4 inches thick. The underlying material to a depth of 80 inches also is sand. The upper part is yellowish brown; the middle part is light yellowish brown, and the lower part is brownish yellow with very pale brown splotches.

Alapaha soils are poorly drained and are along drainageways and in depressions. Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray mottled with light brownish gray in the upper part and light gray mottled with light brownish gray and very pale brown in the lower part. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray mottled with brownish yellow in the upper part, and it is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and makes up 5 to 15 percent of the lower part of the subsoil.

Fuquay soils are well drained and are on broad ridgetops and hillsides. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and makes up 10 to 15 percent of the lower part of the subsoil. Nodules of ironstone are between depths of about 36 and 48 inches.

The minor soils are in the Chipley, Leefield, and Stilson series. Chipley soils are moderately well drained and are on low flats. Leefield soils are somewhat poorly drained and are on low flats next to depressions. Stilson soils are moderately well drained and are in low, smooth, flat areas.

This map unit is used mainly for the production of pulpwood and lumber. Corn, peanuts, and soybeans are grown in some places, and a few areas are used for pasture. Raising hogs is the main livestock enterprise. The main concern in management for the commonly grown plants is the low available water capacity of Lakeland and Fuquay soils. Wetness is the main limitation on Alapaha soils and is a severe limitation for most nonfarm uses.

Nearly level to sloping soils on uplands

Three map units in Thomas County consist of well drained soils. These soils are nearly level to very gently sloping on convex ridgetops and gently sloping to sloping on hillsides. Slopes are predominantly 2 to 5 percent but range from 0 to 12 percent. The soils have a mainly brownish, sandy surface layer and a reddish or brownish, loamy subsoil.

6. Orangeburg-Dothan-Fuquay

Nearly level to sloping soils that have a sandy surface layer and loamy underlying layers; on uplands.

This map unit consists of well drained soils on broad, smooth ridgetops and irregular or rolling, choppy, or convex hillsides. A few places are rough, and some are eroded. Slopes range from 0 to 12 percent. The only area of this unit is about 5 miles south of Boston in the southeastern part of Thomas County.

This map unit makes up about 5 percent of Thomas County. Orangeburg soils make up about 35 percent of the unit; Dothan soils, about 28 percent; Fuquay soils, about 15 percent; and minor soils, about 22 percent.

Orangeburg soils are on the higher lying ridgetops and irregular, choppy hillsides. Typically, the surface layer is loamy sand about 13 inches thick. It is dark grayish brown in the upper part and brown in the lower part. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy loam in the upper few inches and red sandy clay loam below that, and it is mottled with yellowish brown in the extreme lower part (fig. 3).

Dothan soils are on ridgetops and smooth hillsides. Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite is at a depth of 42 inches and ranges from 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Fuquay soils are on broad, smooth ridgetops. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is at a depth of about 50 inches and ranges from 10 to 15 percent in the lower part of the subsoil. Nodules of ironstone are between depths of about 36 and 48 inches.

The minor soils are in the Faceville and Lucy series. They are well drained and are on ridgetops and hillsides.

This map unit is used mainly for the production of pulpwood and lumber. Corn, peanuts, and soybeans are grown, and some areas are used for pasture. Raising beef cattle and raising hogs are the main livestock enterprises. The main concern in management for the commonly grown plants is controlling erosion on Orangeburg and Dothan soils. Low available water capacity is the main limitation on Fuquay soils. This unit is not limited for most nonfarm uses except on some of the sloping, irregular, and choppy hillsides.

7. Orangeburg-Faceville-Tifton

Very gently sloping to sloping soils that have a loamy or sandy surface layer and loamy or clayey underlying layers, on uplands

This map unit consists of well drained soils mainly on broad to narrow smooth ridgetops and on irregular, choppy or convex hillsides that are eroded in most places. Slopes range from 2 to 12 percent. Most areas are in the southern third of the county.

This map unit makes up about 28 percent of Thomas County. Orangeburg soils make up about 36 percent of the unit; Faceville soils, about 25 percent; Tifton soils, about 20 percent; and minor soils, about 19 percent.

Orangeburg soils are on broad, smooth ridgetops and irregular, convex hillsides. Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish red sandy loam in the upper few inches and yellowish red sandy clay loam below, and it is mottled with brownish yellow in the extreme lower part.

Faceville soils are on narrow, smooth ridgetops and irregular, choppy hillsides. Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. It is red in the upper part, red mottled with brownish yellow in the middle part, and red mottled with predominantly brownish yellow in the lower part. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Tifton soils are on broad ridgetops and very gently sloping hillsides. Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 11 inches. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

The minor soils are in the Alapaha, Carnegie, Clarendon, Coxville, Dothan, Lucy, Norfolk, and Ochlockonee series. Alapaha soils are poorly drained and are in depressions and drainageways. Clarendon soils are on somewhat higher lying landforms near natural ponds and drainageways. Coxville soils are on flats and bottom lands. Carnegie, Dothan, Lucy, and Norfolk soils are well drained and are on ridgetops and hillsides. Ochlockonee soils are well drained and are in upland drainageways.

This map unit is used mainly for the production of pulpwood and lumber, and there are many large woodland plantations. Wildlife plantings for quail, dove, deer, and ducks are important. Corn, peanuts, and soybeans are grown, and some areas are used for pasture. Raising hogs and raising beef cattle are the main livestock enterprises. The main concern in management for the commonly grown plants is controlling erosion. Most areas have moderate limitations for most nonfarm uses mainly because of the sloping, irregular, and choppy landscape.

8. Dothan-Norfolk-Fuquay

Nearly level or very gently sloping soils that have a sandy surface layer and loamy underlying layers, on uplands.

This map unit consists of well drained soils on broad, smooth, and convex ridgetops and hillsides. There are a few small intermittent ponds. Slopes range from 0 to 5 percent. This unit is in the southeastern part of Thomas County near Madre Pond.

This map unit makes up about 5 percent of Thomas County. Dothan soils make up about 35 percent of the unit; Norfolk soils, about 28 percent; Fuquay soils, about 25 percent; and minor soils, about 12 percent.

Dothan soils are on broad, smooth, and convex ridgetops and hillsides. Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite is at a depth of 42 inches and ranges from 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Norfolk soils are on broad ridges and smooth hillsides. Typically, the surface layer is grayish brown loamy sand 12 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 12 inches. The subsoil extends to a depth of 65 inches; it is yellowish brown sandy loam in the upper few inches, yellowish brown sandy clay loam in the middle part, and yellowish brown sandy clay loam mottled with strong brown, yellowish red, and very pale brown in the lower part.

Fuquay soils are on broad, smooth, and convex ridgetops. Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches. It is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is in the lower part at a depth of about 50 inches; plinthite content ranges from 10 to 15 percent. Nodules of ironstone are between depths of 36 and 48 inches.

The minor soils are in the Grady and Orangeburg series. Grady soils are poorly drained and are in depressions and drainageways. Orangeburg soils are well drained and are on ridgetops and hillsides.

This map unit is used mostly for the production of pulpwood and lumber. There are several large woodland plantations. Corn, peanuts, soybeans, and pasture are grown in some areas. Raising hogs and a few beef cattle are the main livestock enterprises. The main concern in management for the commonly grown plants is controlling erosion on Dothan and Norfolk soils. The low available water capacity of Fuquay soils is also a limitation. Limitations for most nonfarm uses are slight.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have a similar profile make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped. The Tifton series, for example, was named for the town of Tifton in Tift County.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Tifton loamy sand, 2 to 5 percent slopes, is one of several phases within the Tifton series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes, soil associations, and undifferentiated groups.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Tifton-Urban land complex, 0 to 5 percent slopes, is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Myatt-Osier association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because there is little value in separating them. The pattern and proportion of the soils are not uniform. An area shown on the map has at least one of the dominant (named) soils or may have all of them. Osier and Pelham soils is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Urban land is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 4, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

Soil descriptions

Ap—Alapaha loamy sand. This deep, poorly drained, nearly level soil is in the upper parts of drainageways and in depressions on the Coastal Plain. It is occasionally flooded for brief periods during January through April. Slopes range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 5 to 150 acres.

Typically, the surface layer is dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is gray in the upper part mottled with light brownish gray and is light gray in the lower part mottled with light brownish gray and very pale brown. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is light gray in the upper part mottled with brownish yellow and is mottled predominantly with brownish yellow, light gray, and yellowish red in the lower part. Plinthite is at a depth of 44 inches and ranges from 5 to 15 percent in the lower part of the subsoil.

Included with this soil in mapping are small areas of Leefield and Mascotte soils. Also included are soils that are similar to Alapaha soils except that they do not have plinthite within a depth of 60 inches. The included soils make up about 15 to 25 percent of this map unit, but separate areas are less than 2 acres in size.

This soil is low in natural fertility and organic-matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow in the lower part of the subsoil. Available water capacity is medium. Tilth is good. Although the root zone is deep, a water table is commonly at a depth of 12 to 24 inches in winter and spring, which limits the depth of root penetration.

This soil has low potential for cultivated crops because of wetness and flooding. It has medium potential for pasture, and moderate yields can be obtained.

This soil has medium potential for slash pine and loblolly pine. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this limitation can be partially overcome by using special equipment and by logging during the drier seasons. In addition, some areas can be drained to reduce wetness.

This soil has low potential for most urban uses. Wetness and flooding are the main limitations, and they are difficult to overcome. Capability subclass Vw; woodland suitability group 2w2.

Bm—Bayboro loam. This deep, very poorly drained, nearly level soil is in depressions and low, flat areas on the Coastal Plain. It is commonly flooded for brief periods during December through March. Slopes are dominantly less than 1 percent. Individual areas are 50 to 500 acres.

Typically, the surface layer is black loam about 15 inches thick. The upper several inches of the subsoil is mainly dark gray clay loam, and the lower part is gray clay mottled with gray and brown.

Included with this soil in mapping are a few areas of Bayboro fine sandy loam. Also included are small areas of peat that are too small to map.

This soil is medium in natural fertility and high in organic-matter content. It is strongly acid or very strongly acid throughout except in the surface layer in limed areas. Permeability is slow, and available water capacity is high. Although the root zone is deep, a water table is commonly at a depth of less than 6 inches during winter and early spring, which limits the depth of root penetration.

This soil has low potential for cultivated crops and pasture because of wetness and slow permeability. Because Bayboro soils are on low-lying landscapes and are slowly permeable, wetness and flooding are severe limitations that are difficult to overcome. This soil is not used for cultivated crops or pasture.

This soil has high potential for slash pine, loblolly pine, water tupelo, and sweetgum. Wetness is the main management concern. Because of wetness this soil has limitations for equipment use and a high rate of seedling mortality. Drainage can be installed in some places to reduce this problem. Logging during the drier seasons helps in managing and harvesting the tree crop.

This soil has very low potential for most urban uses. Wetness and flooding are the main limitations, and they can be overcome only by major flood control and drainage measures. Capability subclass VIw; woodland suitability group 2w9.

CaB2—Carnegie sandy loam, 2 to 5 percent slopes, eroded. This well drained, very gently sloping soil is on ridgetops and hillsides of the Coastal Plain uplands. Slopes are commonly undulating. Individual areas are 5 to 30 acres.

Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is strong brown in the upper part, strong brown mottled with red and light gray in the middle part, and red mottled with yellowish brown in the lower part. Plinthite is at a depth of 21 inches and ranges from 10 to 15 percent in the middle and lower parts of the subsoil. Nodules of ironstone are in the surface layer and upper and middle parts of the subsoil.

Included with this soil in mapping are small areas of Tifton and Nankin soils. In some severely eroded places, the subsoil is exposed and gullies are common. Also included are areas of Carnegie loamy sand. The included soils make up about 10 to 20 percent of this map unit.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the soil and slow in the lower part. Available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops and small grain because of the size of the mapped areas and the undulating landscape. It has medium potential for hay and pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Slope is a limitation if this soil is used for sewage lagoons or playgrounds. Capability subclass IIIe; woodland suitability group 2o1.

CaC2—Carnegie sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of the Coastal Plain uplands. Slopes are commonly short and irregular. Individual areas are 8 to 40 acres.

Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil is sandy clay loam that extends to a depth of 65 inches or more. It is strong brown in the upper part, strong brown mottled with red and light gray in the middle part, and red with yellowish brown and gray clay films in the lower part. Plinthite is at a depth of about 21 inches and ranges from 5 to 15 percent in the middle and lower parts of the subsoil. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil.

Included with this soil in mapping are areas of Nankin and Tifton soils that are too small to map separately. In some severely eroded areas the subsoil is exposed and shallow gullies and rills are common. Also included are areas of Carnegie soil that has a loamy sand surface layer. Included soils make up about 15 to 20 percent of the map unit, but separate areas are less than 2 acres.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the soil and slow in the lower part. Available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

This soil has low potential for row crops and small grain because of the size of the mapped areas and the short, irregular slopes. It has medium potential for hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Slope is a limitation if this soil is used for sewage lagoons, playgrounds, or small commercial buildings. Capability subclass IVe; woodland suitability group 2o1.

Ch—Chipley sand. This is a deep, moderately well drained, nearly level soil on flats in the Coastal Plain upland. Slope is dominantly 1 percent, but ranges to 2 percent. Individual areas are 5 to 40 acres.

Typically, the surface layer is sand about 8 inches thick. It is dark gray in the upper part and grayish brown in the lower part. The underlying layers are sand to a depth of 80 inches or more. The upper layer is light yellowish brown mottled with light gray and very pale brown; the middle layer is light yellowish brown mottled with light gray and yellowish brown; and the lower layer is light gray mottled with olive yellow and strong brown.

Included with this soil in mapping are small areas of Lakeland, Leefield, and Mascotte soils. Also included are a few small areas of a soil that is similar to Chipley soils except that its available water capacity is higher within a depth of 5 feet.

This soil is low in natural fertility and organic-matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is rapid, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has low potential for corn, tobacco, soybeans, hay, and pasture because of the low available water capacity. Chipley soils are commonly wet, but during some seasons they are droughty. The use of cover crops, including grasses and legumes, in the cropping system helps increase the organic-matter content.

This soil has high potential for slash pine and loblolly pine. Because this soil is sandy, the use of conventional equipment is restricted in places. Equipment suited to the moisture content of the soil should be used.

This soil has medium potential for most urban uses. Because this soil is sandy, it has limited use for recreation. Wetness limits most urban uses. Capability subclass IIIs; woodland suitability group 2s8.

Cn—Clarendon loamy sand. This is a deep, moderately well drained, nearly level soil on higher lying landscapes adjacent to natural ponds and drainageways in the Coastal Plain upland. Individual areas are 5 to 10 acres.

Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 13 inches. The subsoil is sandy clay loam that extends to a depth of 62 inches or more. It is light yellowish brown mottled with yellowish red and yellowish brown in the upper part; brownish yellow mottled with yellowish brown, brown, red, and light gray in the middle part; and mottled strong brown, red, light gray, and brownish yellow in the lower part. Plinthite is at a depth of about 24 inches and ranges from 10 to 22 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Included with this soil in mapping are small areas of Leefield and Stilson soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for corn, cotton, tobacco, soybeans, hay and pasture, but in most places drainage is needed for high yields.

This soil has high potential for slash pine, loblolly pine, sweetgum, and yellow-poplar. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this can be overcome by working during drier seasons.

This soil has medium potential for most urban uses. Wetness limits most urban uses. Capability subclass IIw; woodland suitability group 2w8.

Co—Coxville fine sandy loam. This is a deep, poorly drained, nearly level soil on flats and bottom lands near some of the larger streams on the Coastal Plain. Individual areas are 10 to 300 acres.

Typically, the surface layer is black fine sandy loam about 3 inches thick. The subsurface layer is fine sandy loam that extends to a depth of 14 inches. It is gray mottled with strong brown and light brownish gray in the upper part and gray in the lower part. The subsoil extends to a depth of 62 inches or more. It is gray sandy clay loam with strong brown stains in the upper few inches, gray clay mottled with yellowish red and strong brown in the middle part, and mottled gray, yellowish red, and strong brown clay in the lower part.

Included with this soil in mapping are small areas of Rains and Wahee soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Tilth is fair. Although the root zone is deep, a water table is commonly at a depth of less than 30 inches from late fall to early spring and limits the depth of root penetration.

This soil has low potential for cultivated crops and pasture because of wetness.

This soil has high potential for slash pine, loblolly pine, water tupelo, and sweetgum. Equipment limitations and seedling mortality are management concerns unless drainage devices are installed.

This soil has very low potential for urban uses. Wetness is the main limitation, and it can be overcome only by major drainage. Capability subclass IVw; woodland suitability group 2w9.

Da—Dasher muck. This is a deep, very poorly drained, nearly level, organic soil in bays and depressions on the Coastal Plain. Individual areas range from 50 to 400 acres.

Typically, the surface layer is very dark brown muck 8 inches thick. The underlying, partially decomposed organic material is dark reddish brown and extends to a depth of 65 inches.

Included with this soil in mapping are a few areas of Bayboro and Pelham soils near the boundaries of the unit.

This soil is higher in nitrogen than the other soils in the survey area, but it is low in other plant nutrients. It is extremely acid to very strongly acid throughout. Organic matter content is very high. Permeability is moderately rapid, and available water capacity is very high.

This soil has very low potential for row crops and pasture because of wetness and a flooding hazard.

This soil has low potential for wood crops. Baldcypress, water tupelo, and pond pine grow near the boundaries of the soil areas. Wetness is the main limitation to equipment use in managing and harvesting tree crops. Logging operations are limited to dry seasons.

This soil has very low potential for most urban uses. Wetness and flooding are the main limitations and can be overcome only by major flood control and soil drainage. This soil is a good source of the organic material commonly referred to as peat moss. Capability subclass VIIw; not placed in a woodland suitability group.

DoA—Dothan loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Coastal Plain. Individual areas are 10 to 50 acres.

Typically, the surface layer is loamy sand about 10 inches thick. It is dark grayish brown in the upper part and light yellowish brown in the lower part. The subsoil is dominantly sandy clay loam that extends to a depth of 66 inches or more. It is yellowish brown in the upper part, yellowish brown mottled with red and strong brown in the middle part, and yellow mottled with red, gray, and strong brown in the lower part. Plinthite is at a depth of about 45 inches and ranges from 8 to 12 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are a few small areas of Tifton and Fuquay soils.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has a high potential for row crops (fig. 4), small grain, hay, and pasture and can produce high yields. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help increase the organic-matter content of the soil.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the lower part of the subsoil limits the use of the soil for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Because of the moderately slow permeability in the lower part of the subsoil, this soil is limited for most sanitary facilities. Capability class I; woodland suitability group 2o1.

DoB—Dothan loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of the Coastal Plain uplands. Slopes are commonly smooth and convex. Individual areas are 5 to 90 acres.

Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. It is predominantly yellowish brown in the upper part, yellowish brown mottled with red and gray in the middle part, and mottled light yellowish brown, light gray, red, and light reddish brown in the lower part. Plinthite begins at a depth of 42 inches and ranges from 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are a few areas of Tifton, Fuquay, Nankin, and Stilson soils. The included soils make up 10 to 20 percent of the map unit, but separate areas are less than 3 acres in size.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and is easily penetrated by plant roots.

This soil has high potential for row crops, small grain, pecans, hay, and pasture and can produce high yields. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, this limitation can be overcome by increasing the size of the absorption area or by modifying the design of the field in some way. Slope and moderately slow permeability limit the use of this soil for sanitary facilities. Capability subclass IIe; woodland suitability group 2o1.

EuB—Esto sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are commonly smooth and convex. Individual areas are 5 to 15 acres.

Typically, the surface layer is sandy loam about 9 inches thick; it is dark grayish brown in the upper part and brown in the lower part. The subsoil extends to a depth of 65 inches or more. It is yellowish brown sandy clay loam in the upper part; predominantly yellowish brown sandy clay mottled with red and brown in the middle part; and mottled red, gray, and brown clay in the lower part. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are small areas of Carnegie and Faceville soils.

This soil is low in natural fertility and organic matter content. It is strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. This soil has good tilth, and the root zone is deep.

This soil has only medium potential for row crops, small grain, hay, and pasture because of the small size of the mapped areas. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. Slow percolation in the subsoil limits the use of this soil for septic tank absorption fields, playgrounds, and camp areas. Low strength is a limitation for most community developments. The clayey subsoil is a limitation for trench type sanitary landfills. Capability subclass IIIe; woodland suitability group 3o1.

EuD—Esto sandy loam, 5 to 12 percent slopes. This well drained, gently sloping and sloping soil is on hillsides of Coastal Plain uplands. Slopes are irregular, choppy, and convex in most places. Individual areas are 5 to 30 acres.

Typically, the surface layer is dark grayish brown sandy loam about 7 inches thick. The subsoil extends to a depth of 62 inches or more. The upper part is a few inches of yellowish brown sandy clay loam over about 12 inches of yellowish red sandy clay mottled with red; below this is clay that is mottled predominantly with red, gray, and brown. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are small areas of Faceville and Carnegie soils.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. This soil has good tilth, and the root zone is deep.

This soil has very low potential for row crops and small grain because of the small size of mapped areas; the irregular, choppy landscape; and the severe erosion hazard. It has medium potential for pasture.

This soil has medium potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. Slow percolation in the subsoil is a limitation for septic tank absorption fields and most recreational uses. Low strength is a limitation for most community developments. The clayey subsoil is a limitation for trench-type landfills. Capability subclass VIe; woodland suitability group 3o1.

FaB—Faceville loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are commonly smooth and convex. Individual areas are 10 to 50 acres.

Typically, the surface layer is dark grayish brown loamy sand about 3 inches thick. The subsurface layer is pale brown loamy sand that extends to a depth of 8 inches. The subsoil is dominantly sandy clay that extends to a depth of 68 inches or more. It is yellowish red in the upper part, red in the middle part, and yellowish red mottled with brown and red in the lower part.

Included with this soil in mapping are a few small areas of Orangeburg, Norfolk, and Tifton soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture and can produce high yields. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. The clayey subsoil is a limitation for some uses. In most places, this limitation can be overcome by good design and construction. Capability subclass IIe; woodland suitability group 3o1.

FaD—Faceville loamy sand, 8 to 12 percent slopes. This well drained, sloping soil is on hillsides between ridgetops and drainageways of the Coastal Plain uplands. Slopes are irregular and choppy. Individual areas are 5 to 25 acres.

Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 65 inches or more. It is yellowish red in the upper part and red mottled with brownish yellow in the lower part. Few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are small areas of Orangeburg soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth and a deep root zone that is easily penetrated by plant roots.

This soil has only medium potential for row crops and small grain because of the small size of mapped areas and the irregular, choppy landscape. It has high potential for hay and pasture. Good tilth can commonly be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. Slope is the main limitation. In addition, the clayey subsoil is a limitation for most sanitary facilities. Capability subclass IVe; woodland suitability group 3o1.

FdC2—Faceville sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of Coastal Plain uplands. Slopes are mostly irregular. Individual areas are 5 to 50 acres.

Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. It is red in the upper part, red mottled with brownish yellow in the middle part, and red mottled with predominantly brownish yellow in the lower part. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are a few small areas of Orangeburg and Esto soils. Also included are severely eroded soils that are difficult to work.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops and small grain because of the irregular landscape. It has high potential for hay and pasture. Tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. The clayey subsoil is a limitation for some uses. In most places, this limitation can be overcome by good design and construction. Capability subclass IIIe; woodland suitability group 3o1.

FsB—Fuquay loamy sand, 1 to 5 percent slopes. This well drained, nearly level to very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are mostly smooth and convex. Individual areas are 5 to 80 acres.

Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 28 inches. The subsoil extends to a depth of more than 65 inches; it is brownish yellow sandy loam in the upper part, brownish yellow sandy clay loam mottled with strong brown in the middle part, and brownish yellow sandy clay loam mottled with strong brown, yellowish red, and light gray in the lower part. Plinthite is in the lower part at a depth of about 50 inches; plinthite content ranges from 10 to 15 percent. Nodules of ironstone are between depths of about 36 and 48 inches.

Included with this soil in mapping are a few small areas of Dothan and Lakeland soils. Also included are soils similar to this Fuquay soil except that nodules of ironstone make up 5 to 15 percent of the upper part of the profile.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has only medium potential for row crops, small grain, hay, and pasture because of the low available water capacity and low fertility. Returning crop residue to the soil helps overcome these limitations.

This soil has medium potential for slash pine and longleaf pine. Equipment limitations and seedling mortality are management concerns.

This soil has high potential for most urban uses. Slow percolation in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. The sandy surface layer is a limitation for most recreational uses. Capability subclass IIs; woodland suitability group 3s2.

Gr—Grady sandy loam. This is a deep, poorly drained, nearly level soil in saucer-shaped depressions on the Coastal Plain. Individual areas range from 3 to 15 acres.

Typically, the surface layer is black sandy loam about 5 inches thick. The subsoil extends to a depth of 65 inches or more. It is gray sandy clay mottled with yellowish brown in the lower part.

Included with this soil in mapping are small areas of Alapaha and Clarendon soils. Also included are areas of a Grady soil that has a loam surface layer.

This soil is low in natural fertility and medium in organic-matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Tilth is good. This soil is commonly saturated or flooded during winter and spring, which limits the growth of plants.

This soil has low potential for cultivated crops because of wetness and flooding. It has medium potential for pasture.

This soil has high potential for slash pine, loblolly pine, water tupelo, and sweetgum. Wetness is the main limitation to equipment use in managing and harvesting the tree crop. Logging during the drier seasons can help overcome the limitation. Drainage is also needed to overcome the high seedling mortality.

This soil has very low potential for most urban uses. Wetness and flooding are limitations that are difficult to overcome. Capability subclass Vw; woodland group 2w9.

LaB—Lakeland sand, 0 to 5 percent slopes. This excessively drained, nearly level to very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are smooth and convex in most places. Individual areas are 5 to 200 acres.

Typically, the surface layer is very dark grayish brown sand about 4 inches thick. The underlying layers to a depth of 80 inches are sand: the upper layer is yellowish brown, the middle layers are light yellowish brown, and the lower layer is brownish yellow with very pale brown splotches.

Included with this soil in mapping are a few small areas of Fuquay and Chipley soils. Also included are a few small areas of soils that have a higher clay content between depths of 70 and 80 inches than is common in Lakeland soils.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very rapid, and available water capacity is low. The soil has good tilth. The very deep root zone is easily penetrated by plant roots.

This soil has low potential for row crops, small grain, hay, and pasture because of the low available water capacity and low fertility. Crop residues returned to the soil help overcome these limitations. If irrigation is used, high yields of such crops as tobacco and peanuts can be obtained.

This soil has medium potential for longleaf pine or slash pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most urban uses. Because it is sandy, it is limited for recreational use. In addition, seepage is a limitation for most sanitary facilities. Capability subclass IVs; woodland suitability group 4s2.

Le—Leefield loamy sand. This is a deep, somewhat poorly drained, nearly level soil on flats of the Coastal Plain.

Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer extends to a depth of 28 inches. It is light brownish gray loamy sand mottled with pale yellow, grayish brown, and yellowish brown. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is light yellowish brown mottled with light gray and yellowish brown in the upper part; light yellowish brown mottled with light gray, yellowish brown, and yellowish red in the middle part; and mottled light gray, brownish yellow, and red in the lower part. Plinthite begins at a depth of about 32 inches and ranges from 5 to 10 percent in the lower part of the subsoil.

Included with this soil in mapping are a few small areas of Stilson and Alapaha soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and this soil can be worked throughout a wide range of moisture conditions. Although the root zone is deep, a water table is commonly at a depth of 18 to 30 inches during winter and early spring and limits root penetration.

This soil has medium potential for corn, tobacco, and truck crops. Unless this soil is drained, its potential is limited because of wetness (fig. 5).

This soil has medium potential for slash pine and loblolly pine. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this can be overcome by working during the drier seasons. In addition, drainage is needed to overcome high seedling mortality.

This soil has medium potential for most urban uses. Wetness is the main limitation, and it is difficult to overcome. Capability subclass IIw; woodland suitability group 3w2.

LmB—Lucy loamy sand, 0 to 5 percent slopes. This well drained, nearly level or very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are smooth and convex in most places. Individual areas are 5 to 50 acres.

Typically, the surface layer is grayish brown loamy sand about 7 inches thick. The subsurface layer is loamy sand that extends to a depth of 32 inches. It is brown in the upper part and strong brown in the lower part. The subsoil extends to a depth of 65 inches. It is red sandy loam in the upper few inches and red sandy clay loam below.

Included with this soil in mapping are a few small areas of Orangeburg and Faceville soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay and pasture because of the low available water capacity and low fertility. Returning crop residue to the soil helps overcome these limitations.

This soil has medium potential for slash pine and longleaf pine. Equipment limitations and seedling mortality are management concerns.

This soil has high potential for most urban uses. The sandy surface layer imposes a limitation to recreational use. Capability subclass IIs; woodland suitability group 3s2.

LmC—Lucy loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of the Coastal Plain uplands. Slopes are rolling and convex in most places. Individual areas are 5 to 20 acres.

Typically, the surface layer is loamy sand about 35 inches thick. It is dark grayish brown in the upper part and light yellowish brown below. The subsoil extends to a depth of 64 inches. It is yellowish red sandy loam in the upper few inches and yellowish red sandy clay loam below.

Included with this soil in mapping are a few small areas of Orangeburg and Faceville soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, small grain, hay, and pasture. Its potential is limited because of low available water capacity, low fertility, and the small size of mapped areas. Erosion is a hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion. Returning crop residue to the soil increases available water capacity and decreases the leaching of plant nutrients.

This soil has medium potential for slash pine and longleaf pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most urban uses. The sandy surface layer is a limitation for recreational uses. Capability subclass IIIs; woodland suitability group 3s2.

Mn—Mascotte sand. This is a poorly drained, nearly level soil in broad, low, flat areas of the Coastal Plain. Individual areas are 5 to 200 acres.

Typically, the surface layer is very dark gray sand about 4 inches thick. The subsurface layer is light gray sand that extends to a depth of 14 inches. This is underlain by an organic hardpan of sand that extends to a depth of 23 inches. It is dark reddish brown in the upper part and brown in the lower part. Below that, pale brown sand mottled with yellowish brown and very pale brown extends to a depth of 35 inches, and gray sandy clay loam mottled with yellowish brown and strong brown extends to a depth of 65 inches (fig. 6).

Included with this soil in mapping are a few small areas of Olustee, Leefield, and Alapaha soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate. Available water capacity is low. Tilth is good. This soil has a weakly cemented, organic hardpan that restricts root penetration during dry seasons. In addition, it is commonly saturated during the growing season, which limits the growth of plants.

This soil has low potential for cultivated crops and pasture because of wetness. In addition, during dry seasons, the underlying hardpan restricts root penetration. A few areas are in corn, soybeans, and bahiagrass pasture, but yields are low.

This soil has medium potential for slash pine and loblolly pine. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by working during drier seasons. In addition, drainage is needed to overcome high seedling mortality.

This soil has low potential for most urban uses. Wetness is the main limitation, and it is difficult to overcome. Capability subclass IVw; woodland suitability group 3w2.

MO—Myatt-Osier association. This association consists of nearly level, poorly drained soils in a regular and repeating pattern. The soils are on bottom lands and low terraces of the major streams, and they are frequently flooded for brief periods during winter and spring. Osier soils are mainly adjacent to the stream channel, and Myatt soils are on somewhat higher lying, nearby terraces. These soils formed in sediment deposited by nearby streams. Individual areas of each soil range from 5 to 50 acres.

Myatt soils make up about 50 percent of the association. Typically, the surface layer is dark gray fine sandy loam about 5 inches thick. The subsurface layer is gray fine sandy loam 7 inches thick. The subsoil extends to a depth of 55 inches. It is gray sandy clay loam mottled with yellowish brown and gray. Below this is mottled gray and yellowish brown loamy sand.

Myatt soils have moderate to moderately slow permeability. Available water capacity is medium. The soil is very strongly acid or strongly acid throughout. The water table is within 12 inches of the surface during winter and spring.

Osier soils make up about 40 percent of the association. Typically, the surface layer is dark gray loamy fine sand about 4 inches thick. Below this to a depth of about 65 inches are layers of grayish sand or fine sand mottled dominantly with brown.

Osier soils have rapid permeability and low available water capacity. The soil is very strongly acid or strongly acid throughout. The water table is within 12 inches of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Pelham soils.

This map unit is wooded. It has high potential for loblolly pine and slash pine, but productivity is somewhat less in sandier areas of Osier soils than for the other soils of the association. The use of equipment is restricted during wet seasons.

This association has very low potential for farming or urban use. Wetness is the main limitation, and it is difficult to overcome. Capability subclass Vw; woodland suitability group 2w9.

NkB—Nankin sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of the Coastal Plain uplands. Slopes are irregular, undulating, and convex. Individual areas are 10 to 40 acres.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish brown sandy clay loam in the upper part, strong brown sandy clay in the middle part, and yellow sandy clay loam mottled with red, gray, and dark red in the lower part. A few ironstone nodules are in the surface layer and in the upper part of the subsoil.

Included with this soil in mapping are areas of a Nankin soil that has a loamy sand surface layer and intermingled areas of soils that are similar to Nankin soils except that they have less clay in the subsoil. Also included are areas of Esto and Carnegie soils. The included soils make up about 15 to 20 percent of this map unit, but individual areas commonly are 1/4 acre to 3 acres.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

Permeability is moderately slow, and available water capacity is medium. Tilth is good, and this soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has only medium potential for row crops, small grain, hay, and pasture because of the small size of mapped areas and the irregular, undulating slopes. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system, help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by increasing the size of the absorption area or by modifying the design in some way. Capability subclass IIe; woodland suitability group 3o1.

NkC—Nankin sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of Coastal Plain uplands. Slopes are irregular, choppy, and convex. Individual areas are 10 to 50 acres.

Typically, the surface layer is dark grayish brown sandy loam about 8 inches thick. The subsoil extends to a depth of 55 inches. It is strong brown sandy clay loam in the upper few inches, yellowish red sandy clay mottled with yellowish red and yellowish brown in the middle part, and mottled yellowish red, light yellowish brown, light gray, and red sandy clay loam below. The underlying material is mottled red and very pale brown sandy clay loam to a depth of 65 inches or more. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil.

Included with this soil in mapping are areas of a Nankin soil that has a loamy sand surface layer and intermingled areas of soils that are similar to Nankin soils except that they have less clay in the subsoil. Also included are areas of Carnegie and Esto soils. The included soils make up about 20 to 30 percent of this map unit.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by plant roots.

This soil has low potential for row crops and small grain because of the irregular, choppy landscape. It has medium potential for pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system, help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has a medium potential for most urban uses. Slow percolation in the subsoil limits the use of the soil for septic tank absorption fields. This limitation can be overcome in most places by modifying the design. Slope is a limitation if this soil is used for sewage lagoons, playgrounds, or small commercial buildings. Capability subclass IIIe; woodland group 3o1.

NoA—Norfolk loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Coastal Plain. Individual areas are 8 to 30 acres.

Typically, the surface layer is loamy sand to a depth of 14 inches. It is grayish brown in the upper part and light yellowish brown in the lower part. The subsoil extends to a depth of 65 inches. It is yellowish brown sandy loam in the upper few inches, yellowish brown sandy clay loam in the middle part, and yellowish brown mottled with strong brown and yellowish red in the lower part.

Included with this soil in mapping are a few small areas of Orangeburg and Dothan soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture and can produce high yields. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system increase organic matter content in the soil.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Capability class I; woodland suitability group 2o1.

NoB—Norfolk loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are smooth and convex in most places. Individual areas are 5 to 70 acres.

Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 12 inches. The subsoil extends to a depth of 65 inches. It is yellowish brown sandy loam in the upper few inches, yellowish brown in the middle part, and yellowish brown mottled with strong brown, yellowish red, and very pale brown in the lower part.

Included with this soil in mapping are a few small areas of Dothan and Orangeburg soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture and can produce high yields. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has a high potential for most urban uses. Capability subclass IIe; woodland suitability group 2o1.

Oc—Ochlockonee loamy sand. This is a deep, well drained, nearly level soil in drainageways on the Coastal Plain. Individual areas range from 5 to 50 acres.

Typically, the surface layer is about 11 inches thick. It is dark brown loamy sand in the upper part and brown sandy loam in the lower part. It is underlain by stratified, dark brown sandy loam and brown loamy sand that extends to a depth of 40 inches. Below that a few inches of yellowish red sandy loam is underlain by red sandy clay loam, which extends to a depth of 65 inches.

Included with this soil in mapping are a few areas of Leefield and Lucy soils.

This soil is moderate in natural fertility and low in organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and this soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for corn, peanuts, and soybeans. High yields can be obtained.

This soil has high potential for slash pine, loblolly pine, and yellow-poplar. Equipment limitation is a management concern.

This soil has low potential for most urban uses. Flooding is the main limitation, and it can be overcome only by flood control measures. Capability class I; woodland group 1o7.

Od—Ocilla loamy sand. This is a deep, somewhat poorly drained, nearly level soil on stream terraces of the Coastal Plain. Individual areas range from 5 to 200 acres.

Typically, these soils have a surface layer of very dark gray loamy sand about 5 inches thick. The subsurface layer is loamy sand that extends to a depth of 28 inches. It is pale brown mottled with brownish gray in the upper part and pale yellow mottled with light brownish gray in the lower part. The subsoil extends to a depth of 65 inches. It is light yellowish brown sandy loam mottled with light gray and yellowish brown in the upper part, light yellowish brown sandy clay loam mottled with light gray and strong brown in the middle part, and olive yellow sandy clay loam mottled with light gray and strong brown in the lower part.

Included with this soil in mapping are a few small areas of Ousley, Wahee, and Rains soils.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. Tilth is good, and this soil can be worked throughout a wide range of moisture conditions. Although the root zone is deep, a water table is commonly at a depth of 12 to 30 inches during winter and early spring and limits root penetration.

This soil has low potential for corn, soybeans, and pasture because of wetness and flooding. Most areas of this soil are used for woodland.

This soil has medium potential for slash pine and loblolly pine. Wetness and flooding are the main limitations to equipment use in managing and harvesting the tree crops, but these limitations can be overcome by working during the drier seasons. In addition, drainage is needed to overcome high seedling mortality.

This soil has low potential for most urban uses. Wetness and flooding are the main limitations, and they are difficult to overcome. Capability subclass IVw; woodland suitability group 3w2.

Oe—Olustee sand. This is a deep, poorly drained, nearly level soil on low flats of the lower Coastal Plain. Individual areas are 5 to 50 acres.

Typically, the surface layer is black sand about 6 inches thick. Next is about 13 inches of dark brown sand. Underlying this layer to a depth of 35 inches is light gray sand mottled with grayish brown and very pale yellow. Below that, gray sandy clay loam mottled with yellowish brown and yellowish red extends to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of Mascotte, Leefield, and Chipley soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate except in the rapidly permeable, loose or very friable layers. Available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture conditions. Although the root zone is deep, this soil is commonly saturated during the growing season, and the growth of plants is restricted.

This soil has medium potential for peanuts, tobacco, soybeans, hay, and pasture. Its potential is limited because of wetness.

This soil has medium potential for slash pine and loblolly pine. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this can be overcome by working during the drier seasons. In addition, drainage is needed to overcome higher seedling mortality.

This soil has low potential for most urban uses. Wetness is the main limitation, and it is difficult to overcome. Capability subclass IIIw; woodland suitability group 3w2.

OrB—Orangeburg loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are commonly smooth, undulating, and convex. Individual areas are 5 to 200 acres.

Typically, the surface layer is loamy sand about 13 inches thick. It is dark grayish brown in the upper part and brown in the lower part. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy loam in the upper few inches and red sandy clay loam in the lower part, and it is mottled with yellowish brown in the extreme lower part.

Included with this soil in mapping are a few small areas of Faceville, Dothan, and Lucy soils.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grain, hay, and pasture and can produce high yields. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Capability subclass IIe; woodland suitability group 2o1.

OrD—Orangeburg loamy sand, 8 to 12 percent slopes. This well drained, sloping soil is on hillsides between ridgetops and drainageways of Coastal Plain uplands. Slopes are irregular and choppy. Individual areas are 5 to 20 acres.

Typically, the surface layer is dark grayish brown loamy sand about 10 inches thick. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy loam in the upper few inches and red sandy clay loam in the lower part. It is mottled with brownish yellow in the extreme lower part.

Included with this soil in mapping are a few small areas of Faceville, Esto, and Lucy soils.

This soil is low in natural fertility and organic-matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, hay, and pasture because of the small size of mapped areas and the irregular, choppy slopes. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. Slope is the main limitation for most uses. Capability subclass IVe; woodland suitability group 2o1.

OsC2—Orangeburg sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of the Coastal Plain uplands. Slopes are irregular and convex. Individual areas are 5 to 30 acres.

Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish red sandy loam in the upper few inches and yellowish red sandy clay loam in the lower part, and it is mottled with brownish yellow in the extreme lower part.

Included with this soil in mapping are a few small areas of Carnegie, Nankin, and Tifton soils. Also included are severely eroded soils that are difficult to work.

This soil is low in natural fertility and organic matter content. It is strongly acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

This soil has only medium potential for row crops and small grain because of the small size of mapped areas and the irregular slopes. It has high potential for hay and pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Capability subclass IIIe; woodland suitability group 2o1.

OS—Osier and Pelham soils. This map unit consists of nearly level soils on flood plains of major streams. It is flooded frequently for brief periods mostly late in winter and early in spring. It consists mainly of Osier soils and Pelham soils that are closely associated but occur in an irregular pattern. Individual areas of both soils are in each mapped area. Because of present and predicted use, they were not separated in mapping. Mapped areas range from 50 to 300 acres.

A typical area is about 42 percent Osier soils, 23 percent Pelham soils, and about 7 percent each of Myatt, Ocilla, Ousley, Rains, and Wahee soils; but in the individual mapped areas, the proportion of each soil varies. The poorly drained Myatt and Rains soils are on low flats near the major stream, and the somewhat poorly drained Ocilla and Wahee soils and the moderately well drained Ousley soils are on low stream terraces.

Typically, Osier soils have a surface layer of dark gray loamy fine sand 4 inches thick. Below this to a depth of 65 inches or more are layers of grayish sand or fine sand mottled dominantly with brown.

Osier soils are very strongly acid or strongly acid throughout. Permeability is rapid, and available water capacity is low. The water table is within 12 inches of the surface during winter and spring.

Typically, Pelham soils have a surface layer of very dark gray loamy sand about 6 inches thick. The subsurface layer is 22 inches of light brownish gray loamy sand. The subsoil extends to a depth of 64 inches or more. It is gray sandy clay loam and is mottled with predominantly yellowish brown in the middle and lower parts.

Pelham soils are very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. The water table is within 6 to 18 inches of the surface during winter and spring.

This map unit is wooded. It has medium potential for loblolly pine, slash pine, sweetgum, and water tupelo. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by working during the drier months.

This map unit has very low potential for farming and urban use. Wetness and flooding are the main limitations, and they can be overcome only by major flood control and drainage. Capability subclass Vw; woodland suitability group 3w3.

Ou—Ousley fine sand. This is a deep, moderately well drained, nearly level soil on low terraces within the flood plain of the major streams of the Coastal Plain. Individual areas are 5 to 100 acres.

Typically, the surface layer is fine sand about 14 inches thick. It is dark grayish brown in the upper part and grayish brown in the lower part. The underlying layers are fine sand to a depth of 65 inches and are sand to a depth of 80 inches. The upper layer is pale brown mottled with gray, the middle layer is very pale brown mottled with light gray, and the lower layer is light gray mottled with light yellowish brown.

Included with this soil in mapping are a few small areas of Ocilla and Wahee soils. Also included are areas of an Ousley soil that has a loamy fine sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is rapid, and available water capacity is low. Tilth is good, and the root zone is deep.

This soil has low potential for cultivated crops and a medium potential for pasture. Its potential is limited because of wetness and flooding. If this soil is protected from flooding and properly managed, higher yields can be obtained from the commonly grown crops.

This soil has medium potential for growing slash pine and loblolly pine. Wetness and flooding are limitations to equipment use in managing and harvesting the tree crop, but these limitations can be overcome by using special equipment and logging during the drier seasons. Also, high seedling mortality can be reduced by installing drainage.

This soil has a low potential for most urban uses because of flooding and wetness. This soil is too sandy for recreational use. Capability subclass IIIw; woodland suitability group 3w2.

Ra—Rains loamy sand. This is a deep, poorly drained, nearly level soil on flats and in slight depressions of stream terraces on the Coastal Plain. Individual areas are 5 to 60 acres.

Typically, the surface layer is very dark gray loamy sand 5 inches thick. The subsurface layer is light brownish gray loamy sand 11 inches thick. The subsoil extends to a depth of 65 inches or more. It is gray sandy loam mottled with yellowish brown in the upper several inches and gray sandy clay loam mottled with yellowish brown, yellowish red, and strong brown in the lower part.

Included with this soil in mapping are a few small areas of Ocilla, Ousley, and Wahee soils. Also included are areas of a Rains soil that has a loamy fine sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. Although the root zone is deep, this soil is commonly saturated from fall to early spring, which limits the growth of plants.

This soil has low potential for cultivated crops and pasture. Its potential is limited because of wetness and flooding.

This soil is mostly wooded and has high potential for slash pine, loblolly pine, and sweetgum. Wetness and flooding are limitations to equipment use in managing and harvesting the tree crop, but these limitations can be overcome by using special equipment and logging during the drier seasons. Also, high seedling mortality can be reduced by installing drainage.

This soil has very low potential for most urban uses. Wetness and flooding are the main limitations, and they are difficult to overcome. Capability subclass Vw; woodland suitability group 2w3.

Se—Stilson loamy sand. This is a deep, moderately well drained, nearly level soil on smooth uplands of the Coastal Plain. Individual areas are 5 to 40 acres.

Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer is loamy sand 30 inches thick. It is grayish brown in the upper part and pale yellow mottled with brownish yellow in the lower part. The subsoil is sandy clay loam that extends to a depth of 62 inches. It is light yellowish brown mottled with yellowish brown and light gray in the upper part and brownish yellow mottled with yellowish brown, light gray, strong brown, and yellowish red in the lower part. Plinthite is at a depth of about 46 inches and ranges from 10 to 15 percent in the lower part of the subsoil.

Included with this soil in mapping are a few small areas of Dothan, Fuquay, and Leefield soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for corn, tobacco, peanuts, soybeans, truck crops, hay, and pasture. Its potential is limited because of wetness.

This soil has medium potential for slash pine and loblolly pine. Wetness is the main limitation to equipment use in managing and harvesting the tree crop and can be overcome by using equipment in the drier seasons.

This soil has medium potential for most urban uses. Wetness is the main limitation if this soil is used for sanitary facilities or recreation. Capability subclass IIw; woodland suitability group 3s2.

TfA—Tifton loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Coastal Plain. Individual areas are 5 to 80 acres.

Typically, the surface layer is dark grayish brown loamy sand about 10 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part and yellowish brown mottled with light yellowish brown, strong brown, red, and gray in the lower part. Plinthite is at a depth of about 44 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Included with this soil in mapping are a few small areas of Dothan and Fuquay soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops (fig. 7), small grains, hay (fig. 8), and pasture. High yields can be obtained. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system increase the organic-matter content in the soil.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the subsoil limits this soil for use as septic tank absorption fields. This limitation can be overcome by good design and construction in most places. Capability class I; woodland suitability group 2o1.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides of Coastal Plain uplands. Slopes are generally smooth and convex. Individual areas are 5 to 150 acres.

Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is light yellowish brown loamy sand 3 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and pale yellow in the lower part. Plinthite is at a depth of about 42 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Included with this soil in mapping are a few small areas of Dothan, Fuquay, and Orangeburg soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, small grains, hay, and pasture (fig. 9). High yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage (fig. 10) and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the subsoil limits the use of this soil for septic tank absorption fields. The limitation can be overcome in most places by increasing the size of the absorption area or by modifying the design in some way. Slope and seepage are limitations if this soil is used for sewage lagoons. Capability subclass IIe; woodland suitability group 2o1.

TsC2—Tifton sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides between ridgetops and drainageways of the Coastal Plain uplands. Slopes are irregular and convex. Individual areas are 5 to 25 acres.

Typically, the surface layer is brown sandy loam about 4 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 60 inches or more. It is strong brown in the upper part, strong brown mottled with yellowish brown and red in the middle part, and strong brown mottled with red and light gray in the lower part. Plinthite is at a depth of about 38 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Included with this soil in mapping are a few small areas of Carnegie and Nankin soils. Also included are severely eroded soils that are difficult to work. The included soils make up about 10 to 20 percent of this map unit, but separate areas commonly are less than 1 acre.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

This soil has only medium potential for row crops and small grain because of the irregular landscape and the small size of mapped areas. It has high potential for hay and pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has high potential for most urban uses. Slow percolation in the subsoil limits the use of this soil for septic tank absorption fields. Slope and seepage are limitations if the soil is used for sewage lagoons. Slope is a limitation if it is used for small commercial buildings. Capability subclass IIIe; woodland suitability group 2o1.

TuB—Tifton-Urban land complex, 0 to 5 percent slopes. This complex consists of Tifton soils and Urban land so intermingled that they could not be mapped separately at the scale selected. It is on nearly level ridgetops and very gently sloping hillsides of Coastal Plain uplands. Mapped areas are 10 to 80 acres in size. Individual areas of Tifton soil and Urban land are 5 to 40 acres.

Tifton sandy loam makes up about 60 percent of each mapped area. Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 65 inches or more. It is yellowish brown in the upper part, strong brown in the middle part, and strong brown mottled with red, yellowish brown, and light gray in the lower part. Plinthite is at a depth of about 40 inches and ranges from 10 to 25 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic-matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium.

Urban land makes up about 40 percent of each mapped area. Most areas are shopping centers, schools, parking lots, industries, streets, commercial buildings, and private dwellings. The soils have been altered by cutting, filling, and shaping for community development.

Although this complex is used primarily for nonfarm purposes, it has high potential for home vegetable gardens, shrubs, shade trees, small parks, and lawns.

This complex has high potential for most urban uses. Slow percolation in the subsoil is a limitation for septic tank absorption fields. In most places this limitation can be overcome by careful design and installation. Capability subclass IIe; not assigned to a woodland suitability group.

WA—Wahee soils. This map unit consists of deep, somewhat poorly drained, nearly level soils on terraces of the larger streams on the Coastal Plain. It is commonly flooded for brief periods during winter and early spring. It consists of Wahee soils and soils that have a lower clay content but are closely associated in an irregular pattern. Individual areas of these soils are large enough to map separately, but because of present and predicted use they were not separated in mapping. Most mapped areas contain both Wahee soils and soils that have a lower clay content, but a few areas do not contain one or the other.

A typical area of this map unit is about 60 percent Wahee soils, 15 percent each Ocilla and Rains soils, and 10 percent Ousley soils.

Typically, Wahee soils have a surface layer of very dark gray fine sandy loam about 4 inches thick. The subsurface layer is light brownish gray fine sandy loam 6 inches thick. The subsoil extends to a depth of 65 inches or more. It is light yellowish brown sandy clay loam mottled with gray over yellowish brown clay loam mottled with gray to a depth of 18 inches; gray clay mottled with yellowish brown and red in the middle part; and gray sandy clay loam mottled with yellowish brown and pale yellow in the extreme lower part.

Wahee soils are low in natural fertility and organic matter content. They are very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. The water table is within 12 inches of the surface during winter and early spring and limits root penetration.

This map unit has low potential for cultivated crops, but it can produce high yields. Its potential is limited because of wetness and flooding. It has medium potential for hay and pasture. If this map unit is drained, protected against flooding, and properly managed, good yields can be obtained.

This map unit has high potential for slash pine, loblolly pine, sweetgum, and yellow-poplar. Because of wetness and flooding, the main management problems, the use of equipment is limited and seedling mortality is higher. Some places need to be drained to reduce this problem. Also, logging during the drier seasons helps in managing and harvesting the tree crop.

This map unit has low potential for most urban uses. Wetness and flooding are the main limitations, and they can be overcome by flood control and drainage measures. Capability subclass IIIw; woodland suitability group 2w8.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture and woodland; as sites for buildings, highways, and other transportation systems; sanitary facilities; for parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. The location of pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs is influenced by the nature of the soil.

Crops and pasture

JOHNNY M. EUBANKS and WALTER A. JAMES, district conservationists, Soil Conservation Service, helped prepare this section.

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the predicted yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential and needed practices in the survey area for those in the agribusiness sector—equipment dealers, drainage contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil Maps for Detailed Planning." When making plans for management systems for individual fields or farms, check the detailed information given in the description of each soil.

More than 255,385 acres in the survey area were used for crops and pasture in 1967, according to the Georgia Conservation Needs Inventory, April 1970. Of this total 40,591 acres were used for permanent pasture; 148,318 acres were used for row crops, mainly corn; 5,792 acres were used for close-grown crops, mainly rye and oats; and 200,346 acres were in total tillage rotation. The rest was in rotation hay and pasture, in hayland, in conservation use, in peach orchards (fig. 11) and other fruit orchards, and in vineyards. Some was open land that had once been tilled, and some was temporarily left idle.

The soils in the survey area can produce more food than they do. About 60,090 acres of potentially good cropland is used as woodland, and about 15,908 acres, as pasture. Food production could be increased considerably by using this land for crops and by applying the latest technology to all cropland in the counties.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. In 1967 there were about 18,500 acres of urban and built up land in Brooks and Thomas Counties; this figure has been increasing at the rate of about 70 acres per year.

Soil erosion is the main concern on the cropland and pastureland in Brooks and Thomas Counties. If slope is more than 2 percent, erosion is a hazard. Carnegie, Dothan, Esto, Faceville, Nankin, Norfolk, Orangeburg, and Tifton soils, for example, have slopes of more than 2 percent, and erosion is the main hazard on these soils.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. This is especially damaging on soils with a clayey subsoil, such as Esto and Faceville soils. Erosion also reduces the productivity of soils that tend to be droughty, such as Fuquay, Lucy, and Faceville soils. Second, erosion of farmland results in sedimentation. Control of erosion minimizes sedimentation and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

Many sloping soils have clayey or hardpan spots where preparing a good seedbed and tilling the soil are difficult because the original, friable surface layer has been eroded away. Such spots are common in areas of eroded Faceville, Tifton, Orangeburg, and Carnegie soils.

Erosion can be controlled by practices that provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil losses from erosion to a level that will not reduce the productive capacity of the soils. On livestock farms, where pasture and hay are required, the legume and grass forage crops reduce erosion on sloping land, provide nitrogen, and improve tilth for the next crop.

Using minimum tillage and leaving crop residue on the surface help to increase infiltration and reduce the hazard of erosion from runoff. These practices can be adapted to most soils in the survey area. No-tillage, which is used on an increasing acreage in corn, is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions, which reduce the length of the slope, reduce runoff and erosion. They are most practical on deep, well drained soils that have regular slopes. Tifton, Dothan, Carnegie, Faceville, Fuquay, Lucy, Nankin, Norfolk, and Orangeburg soils, for example, are suitable for terraces.

Contouring and, to some extent, contour stripcropping are the erosion control practices commonly used in the survey area. They are best adapted to soils with smooth, uniform slopes, including most areas of the sloping Tifton, Dothan, Carnegie, Faceville, Fuquay, Lucy, Nankin, Norfolk, and Orangeburg soils.

Soil blowing is a minor hazard on the sandy Lakeland and Chipley soils. Soil blowing can damage these soils and the young crops on them if winds are strong and the soils are dry and nearly bare of vegetation or surface mulch. Maintaining vegetative cover, surface mulch, or rough surfaces minimizes soil blowing on these soils. Windbreaks of pine trees are effective in reducing soil blowing in broad, open fields of sandy soils.

Information on erosion control practices for each kind of soil is available at local offices of the Soil Conservation Service.

Soil drainage is the main management need on about one-fourth of the acreage used for crops and pasture in the survey area. Some soils are so wet that the production of crops common to the area is generally not possible or feasible. These are the poorly drained or very poorly drained Alapaha, Bayboro, Coxville, Grady, Mascotte, Myatt, Olustee, Osier, Pelham, and Rains soils, which make up about 166,259 acres in the survey area. Most of this land is wooded.

Unless artificially drained, the somewhat poorly drained soils, such as Leefield, Ocilla, and Wahee soils, are so wet that crops are damaged during most years. These soils make up about 37,485 acres in the survey area.

Ochlockonee soils have good natural drainage most of the year, but because they are along drainageways they tend to dry out slowly after rains. Clarendon and Stilson soils are moderately well drained, but they need artificial drainage in most years.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of the poorly drained and very poorly drained soils that could be used intensively for row crops. Drains have to be more closely spaced in slowly permeable soils than in more permeable soils. Tile drainage is a very slow method of draining Bayboro, Coxville, and Grady soils. Adequate outlets for tile drainage systems are difficult to find in areas of Bayboro, Grady, Myatt, Osier, Pelham, and Rains soils.

Organic soils oxidize and subside when the pore space is filled with air; therefore, special drainage systems are needed to control the depth and the period of drainage. Oxidation and subsidence can be minimized by keeping the water table at the level required by crops during the growing season and raising it to the surface at other times. Information on the drainage design needed for each kind of soil is available at local offices of the Soil Conservation Service.

Soil fertility is naturally low in most soils of the survey area, and all soils are naturally acid. The soils in low areas and drainageways and on flood plains, such as Alapaha, Bayboro, Coxville, Grady, Myatt, Osier, Pelham, and Rains soils are slightly higher in content of organic matter and some plant nutrients than are most soils on uplands.

Many soils on uplands are naturally very strongly acid. They need applications of ground limestone to raise the pH sufficiently for clover and other crops that grow only on nearly neutral soils. Available phosphorus and potash levels are low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help determine the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds because it affects infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy sand that is low in content of organic matter. Soil tilth is generally good except on eroded Carnegie, Faceville, Orangeburg, and Tifton soils in which the subsoil is exposed. Regular additions of crop residue, manure, and other organic material help to improve or maintain soil tilth.

Fall plowing is generally not a good practice in the survey area. Most of the cropland consists of sloping soils that are subject to damaging erosion if they are plowed in the fall.

Special crops grown in the survey area are vegetables, small fruits, tree fruits, and nursery plants. Turnips, mustard, cabbage, collards, okra, sweet corn, pole beans, butterbeans, and peppers are also grown, but the total acreage in these crops is small. Watermelons, cantaloups, and blueberries are grown on some farms. A moderate acreage is in peaches and pecans (fig. 12).

Deep soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. These are Tifton, Dothan, Carnegie, Norfolk, and Orangeburg soils that have slopes of less than 6 percent and that cover about 252,000 acres. Also, if irrigated, about 55,000 acres of Fuquay, Lucy, and Lakeland soils that have slopes of less than 6 percent are well suited to vegetables and small fruits. Crops can generally be planted and harvested earlier on all of these early warming soils than on the other soils in the survey area.

If adequately drained, the muck soils in the survey area are well suited to a wide range of vegetable crops. Dasher muck makes up about 1,490 acres in the survey area, but only a small acreage has been drained for crops.

Most of the well drained soils in the survey area are suitable for orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor, however, generally are poorly suited to early vegetables, small fruits, and orchards.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the soil is not suited to the crop or the crop is not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 5.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; 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 residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown; that good quality irrigation water is uniformly applied in proper amounts as needed; and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of the soils 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 table 5 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman 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 landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 6. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability subclass is identified in the description of each soil map unit in the section "Soil maps for detailed planning."

Woodland management and productivity

W.P. THOMPSON, forester, Soil Conservation Service, helped prepare this section.

Virgin forest of mostly longleaf pine originally covered about 99 percent of Brooks and Thomas Counties. Presently about 29 percent of the total land area is in forest.

The principal commercial tree species on the well drained soils on convex ridges are longleaf pine, loblolly pine, slash pine, red oak, and water oak. The main trees on soils in depressions, drainageways, bays, and swamps are cypress, blackgum, sweetgum, water oak, willow oak, sycamore, red maple, elm, and tupelo gum.

Most of the soils in Brooks and Thomas Counties have high or moderately high potential productivity for wood crops. The income from lumber and pulp wood is important in the two counties (fig. 13). The largest areas of woodland are on the 40 woodland plantations in the southern part of both counties, but mostly in Thomas County. The largest concentration of mature longleaf pine (fig. 14) in Georgia is on the woodland plantations in the southern part of Thomas County.

Table 7 contains information useful to woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol* (*woodland suitability group*), a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third part of the symbol indicates the degree of hazard or limitation and the general suitability of the soils for certain kinds of trees. The numeral 1 indicates that the soils have no significant limitation and are best suited to needleleaf trees (pines or redcedar); 2 indicates the soils have a slight to moderate limitation and are best suited to needleleaf trees; 3 indicates the soils have a moderate to severe limitation and are best suited to needleleaf trees; 4 indicates the soils have no significant limitation and are best suited to broadleaf trees; 5 indicates the soils have a slight to moderate limitation and are best suited to broadleaf trees; 6 indicates the soils have a moderate to severe limitation and are best suited to broadleaf trees; 7 indicates no significant limitation and suitability for both needleleaf and broadleaf trees; 8 indicates a slight to moderate limitation and suitability for both needleleaf and broadleaf trees; 9 indicates a moderate to severe limitation and suitability for both needleleaf and broadleaf trees. The numeral 0 indicates that the soils are not suitable for the production of commercial wood crops. (Only numerals 1, 2, 3, 7, 8, and 9 are shown in Table 7.)

In table 7 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Considered in the ratings of *windthrow hazard* are characteristics of the soil that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate*, that some trees are blown down during periods of excessive soil wetness and strong winds; and *severe*, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *important trees* (*8*) on a soil is expressed as a *site index*. This 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. Important 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.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Engineering

PERRY F. DOMINY, civil engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational areas; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 8 shows, for each kind of soil, the degree and kind of limitations for building site development; table 9, for sanitary facilities; and table 11, for water management. Table 10 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 8. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 8 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 8 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 9 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, and *poor*, which mean about the same as *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold 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. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 9 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

If it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 10 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 14 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low frost action potential, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 10 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 14.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can restrict plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils or very firm clayey soils; soils that have suitable layers less than 8 inches thick; soils that have large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 11 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of the soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 11 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Recreation

JOHNNY M. EUBANKS and WALTER A. JAMES, district conservationists, Soil Conservation Service, helped prepare this section.

The soils of the survey area are rated in table 12 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the 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 by a combination of these measures.

The information in table 12 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 9, and interpretations for dwellings without basements and for local roads and streets, given in table 8.

Camp areas require such site preparation as shaping and leveling for 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 for this use 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 camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as 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 will 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 or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

JESSE MERCER, JR., biologist, Soil Conservation Service, helped prepare this section.

The major kinds of wildlife in Brooks and Thomas Counties are bobwhite quail, dove, duck, turkey, deer, cottontail rabbit, and tree squirrel. Extra attention is given to producing food for wildlife on the plantations in these counties. Duck ponds have been built, and many areas are used only for growing food for wildlife. Feeding stations are available to wildlife throughout the year.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 13, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and 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* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of habitat are very severe and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties 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 flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, barley, proso, cowpea, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties 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, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bahiagrass, ryegrass, panicgrass, clovers, annual lespedeza, and perennial lespedeza.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties 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 flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are beggarweed, perennial lespedeza, partridgepea, wild bean, pokeberry, shrub lespedeza, and cheat.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of hardwood plants are oak, poplar, beech, cherry, sweetgum, hawthorn, dogwood, persimmon, maple, sassafras, sumac, black walnut, grape, hickory, blackberry, blueberry honeysuckle, viburnum, elaeagnus, and briers. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are autumn-olive and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, ornamentals, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, teasthumb, aneilema, cattail, rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat 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. The kinds of wildlife attracted to these areas include bobwhite quail, dove, killdeer, meadowlark, field sparrow, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and opossum.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, snipe, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 14 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 14 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 14 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 soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (*3*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*2*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging 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. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested in the survey area, with group index numbers in parentheses, is given in table 17. The estimated classification, without group index numbers, is given in table 14. Also in table 14 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and in plasticity index is estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

Physical and chemical properties

Table 15 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 16 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received 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 chiefly of deep, well drained to excessively drained sands or gravels. 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 that have a layer that impedes the downward movement of water or soils that have 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 clay soils that have a high shrink-swell potential, soils that have a permanent 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 is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils.

Engineering test data

Table 17 gives the results of tests on selected soil samples. These tests were made by the Georgia Department of Transportation according to standard procedures of the American Association of State Highway and Transportation Officials (AASHTO) (*2*), unless noted otherwise. The profiles are typical, and the data probably do not show the maximum variation in the horizons of each soil series.

All of the samples were taken at a depth of less than 10 feet. The test data, therefore, may not be adequate for estimating the characteristics of soil material where deep cuts are required in rolling or hilly terrain. The samples were tested for moisture-density relationships, volume change, grain-size distribution, liquid limit, and plasticity index.

In the moisture-density test, soil material was compacted several times in a mold under a constant compaction effort, each time at a successively higher moisture content. The density, or unit weight, of the soil material increases until the optimum moisture content is reached. From that point, the density decreases as moisture content increases. The highest density obtained in the compaction test is the maximum dry density. Data showing moisture density are important in earthwork because, generally, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

The data on volume change indicate the amount of shrinking and swelling measured on samples prepared at optimum moisture content and then subjected to drying and wetting. The total change that can occur in a specified soil is the sum of the values given for shrinking and swelling (*1*).

The test for liquid limit and plastic limit measures the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from semisolid to plastic. As the moisture content is further increased, the material changes from plastic to liquid. The plastic limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Classification of the soils

The system of soil classification used by the National Cooperative Soil Survey (*9*) has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 18, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Haplaquents (*Hapl*, meaning simple horizons, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceeding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Haplaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-loamy, mixed, nonacid, mesic, Typic Haplaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (7). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Alapaha series

The Alapaha series consists of deep, poorly drained soils that are moderately slowly permeable in the lower part of the subsoil. These soils formed in sandy and loamy, marine sediments and are in drainageways and depressions on the Coastal Plain. The water table is within 12 to 24 inches of the surface for 3 to 6 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Alapaha soils are near Leefield, Mascotte, and Rains soils. Leefield soils have dominant chroma of 3 or more throughout the Bt horizon, occupy higher landscapes, and are somewhat poorly drained. Mascotte soils have an organic, cemented layer below the A horizon and are on slightly higher landscapes. Rains soils do not have plinthite within 60 inches of the surface and have an A horizon less than 20 inches thick.

Typical pedon of Alapaha loamy sand, in a wooded area 2.0 miles west of Coolidge along Georgia Highway 188; 0.6 mile south along county road; and 70 feet east of road; in Thomas County:

A1—0 to 5 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many fine roots; common clean sand grains; very strongly acid; clear wavy boundary.

A21g—5 to 20 inches; gray (10YR 5/1) loamy sand; common medium distinct light brownish gray (10YR 6/2) mottles; weak fine granular structure; common fine and medium roots; very strongly acid; gradual wavy boundary.

A22g—20 to 32 inches; light gray (10YR 6/1) loamy sand; common medium faint light brownish gray (10YR 6/2) and very pale brown (10YR 7/3) mottles; weak fine granular structure; very strongly acid; clear wavy boundary.

B21tg—32 to 44 inches; light gray (10YR 6/1) sandy clay loam; common medium distinct gray (10YR 5/1), and brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; few patchy clay films on some faces of peds; very strongly acid; gradual wavy boundary.

B22t—44 to 56 inches; coarsely mottled brownish yellow (10YR 6/6), light gray (10YR 6/1), strong brown (7.5YR 5/8), and yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few patchy clay films on some faces of peds; 5 to 8 percent plinthite; very strongly acid; gradual wavy boundary.

B23t—56 to 65 inches; mottled red (2.5YR 4/8), brownish yellow (10YR 6/6), light gray (10YR 6/1), and yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; firm; 10 to 12 percent plinthite; very strongly acid.

Solum thickness ranges from 62 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 40 inches thick. The A1 horizon has hue of 10YR and N; value of 2, 3, or 4; and chroma of 1. The A2g horizon has hue of 10YR; value of 4, 5, or 6; and chroma of 1.

The Bt horizon is 20 to 40 inches thick or more. The B1 horizon, if present, has hue of 10YR, value of 6 or 7, and chroma of 1. The Btg horizon has hue of 10YR; value of 5, 6, or 7; and chroma of 1 or 2. The Bt horizon has many medium or coarse brown, gray, red, yellow, and yellowish red mottles. It has 5 to 15 percent plinthite in the lower part.

Bayboro series

The Bayboro series consists of deep, very poorly drained, slowly permeable soils that formed in clayey marine sediments. These are nearly level soils in low, flat areas and depressions of the Coastal Plain. The water table is either at the surface or about 6 inches below it for 5 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Bayboro soils are near Coxville and Dasher soils. Coxville soils are somewhat better drained than Bayboro soils, do not have an umbric epipedon, and are on slightly higher landscapes. Dasher soils are organic for 60 inches or more and are in depressions.

Typical pedon of Bayboro loam in a wooded area 0.5 mile southwest of Grooverville along a county road; 1.2 miles south along a plantation road; and 100 yards southwest into Aucilla Swamp; in Brooks County:

A1—0 to 15 inches; black (N 2/0) loam; weak medium granular structure; very friable; many fine and medium roots; high in organic matter content; very strongly acid; clear smooth boundary.

B1g—15 to 23 inches; dark gray (10YR 4/1) clay loam; common coarse distinct very dark gray (10YR 3/1) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; some organic matter in root channels; very strongly acid; clear wavy boundary.

B21tg—23 to 38 inches; gray (10YR 6/1) clay; common medium faint gray (10YR 5/1) mottles and few fine distinct yellowish brown mottles; strong medium subangular blocky structure; very firm; continuous clay films on faces of peds; few medium roots; very strongly acid; gradual wavy boundary.

B22tg—38 to 54 inches; gray (10YR 5/1) clay; common medium faint dark gray (10YR 4/1) mottles and few fine distinct light olive brown (2.5Y 5/6) mottles; strong medium subangular blocky structure; very firm; thin continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—54 to 62 inches; gray (10YR 6/1) clay; common medium faint gray (10YR 5/1) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; strong medium subangular blocky structure; very firm; thin continuous clay films on faces of peds; very strongly acid.

Solum thickness ranges from 60 to 65 inches or more. The soil is strongly acid or very strongly acid throughout except in limed areas.

The A horizon ranges from 12 to 16 inches thick. It has hue of N, value of 2, and chroma of 0 or 1.

The B1 horizon has hue of 10YR, value of 4 or 5, and chroma of 1. The B1 horizon is clay loam or sandy clay. The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1.

Carnegie series

The Carnegie series consists of deep, well drained soils that have moderate permeability in the upper part of the subsoil and slow permeability in the lower part. These soils formed in loamy marine sediments on uplands of the Coastal Plain. Slope is dominantly about 6 percent, but ranges from 2 to 8 percent.

Carnegie soils are near Dothan and Tifton soils. Dothan soils in most places are on smoother topography and contain fewer ironstone nodules than Carnegie soils. Tifton soils are deeper to plinthite.

Typical pedon of Carnegie sandy loam, in an area of Carnegie sandy loam, 5 to 8 percent slopes, eroded; in north roadbank 5.6 miles north of intersection of State Highway 202 and Ochlockonee River; 1.5 miles west on county road to road intersection; 0.9 mile northwest along county road; in Thomas County:

Apcn—0 to 7 inches; brown (10YR 5/3) sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 18 percent small hard nodules of ironstone 1/8 to 3/4 inch in diameter; very strongly acid; clear smooth boundary.

B21tcn—7 to 21 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; thin patchy clay films on faces of peds; 8 percent small nodules of ironstone; 4 percent plinthite mostly in lower part; very strongly acid; clear wavy boundary.

B22t—21 to 35 inches; strong brown (7.5YR 5/6) sandy clay loam; many medium prominent red (2.5YR 4/8) mottles and common fine and medium distinct light gray (10YR 7/2) mottles; moderate medium and coarse blocky and subangular blocky structure, which tends toward prismatic in place; firm; few fine and medium roots; continuous clay films on faces of peds; few small nodules of ironstone in upper part; 15 percent plinthite; very strongly acid; gradual smooth boundary.

B23t—35 to 65 inches; red (10R 4/8) sandy clay loam; faces of peds have thin yellowish brown (10YR 5/6) clay films and thick patchy gray (10YR 7/1) clay films; moderate coarse angular blocky structure; firm; few medium roots; 4 percent plinthite; very strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is strongly acid or very strongly acid throughout except in limed areas. Depth to horizons with more than 5 percent plinthite is 18 to 22 inches.

The A horizon is 4 to 8 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Nodules of ironstone range from 5 to 20 percent, by volume.

The Bt horizon has hue of 10YR, 7.5YR, 5YR, or 10R; value of 4 or 5; and chroma of 4, 6, or 8. It is dominantly sandy clay loam but includes clay loam. The middle part of the Bt horizon has many medium or coarse red, gray, yellow, or brown mottles. The gray mottles do not represent wetness. The B21t horizon is 5 to 15 percent nodules of ironstone, and the B23t horizon is less than 5 percent.

Chipley series

The Chipley series consists of deep, moderately well drained, rapidly permeable soils that formed in sandy marine sediments. These soils are on flats on uplands of the Coastal Plain. The water table is at a depth of 24 to 36 inches for 2 to 4 months each year. Slope is dominantly 1 percent but ranges to 2 percent.

Chipley soils are near Lakeland, Leefield, and Mascotte soils. Lakeland soils do not have mottles with chroma of 2 or less within 40 inches of the surface. Leefield soils have an argillic horizon and are somewhat poorly drained. Mascotte soils have a Bh horizon and are poorly drained.

Typical pedon of Chipley sand, in a pasture 0.7 mile west along State Highway 94 from bridge over Little River; 200 feet south of road juncture; in Brooks County:

Ap—0 to 5 inches; dark gray (10YR 4/1) sand; single grained; loose; many fine and medium roots; very strongly acid; clear wavy boundary.

A1—5 to 8 inches; grayish brown (10YR 5/2) sand; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

C1—8 to 35 inches; light yellowish brown (2.6Y 6/4) sand; few fine distinct very pale brown (10YR 7/3) mottles and few fine faint light gray mottles; single grained; loose; few medium roots; very strongly acid; gradual smooth boundary.

C2—35 to 52 inches; light yellowish brown (2.5Y 6/4) sand; common medium distinct light gray (2.5Y 7/2) mottles and few fine distinct yellowish brown (10YR 5/6) mottles; single grained; loose; very strongly acid; gradual smooth boundary.

C3—52 to 80 inches; light gray (10YR 7/2) sand; common medium distinct olive yellow (2.5Y 6/6) mottles and few fine distinct strong brown (7.5YR 5/8) mottles; single grained; loose; very strongly acid.

Sand thickness is 80 inches or more. The soil is very strongly acid or strongly acid throughout except in limed areas.

The A horizon is 6 to 10 inches thick. The A1 or Ap horizon has hue of 10YR; value of 3, 4, or 5; and chroma of 1 or 2.

The C horizon has hue of 10YR or 2.5Y; value of 6, 7, or 8; and chroma of 1, 2, 3, 4, or 6. It includes common medium mottles of strong brown, light yellowish brown, gray, light gray, and pale brown. Some pedons have pockets of clean white sand grains in the C2 and C3 horizons.

Clarendon series

The Clarendon series consists of deep, moderately well drained soils that are moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part. These are nearly level soils that formed dominantly in loamy marine sediments and are on low uplands of the Coastal Plain. The water table is about 18 to 30 inches below the surface in late winter and early spring. Slope is dominantly about 1 percent but ranges to 2 percent.

Clarendon soils are near Stilson, Leefield, and Alapaha soils, all of which have an A horizon 20 to 40 inches thick. In addition, Leefield soils are on lower lying landscapes and are somewhat poorly drained, and Alapaha soils are poorly drained and are in depressions and drainageways.

Typical pedon of Clarendon loamy sand, in a cultivated field 0.8 mile south of Kennedy Chapel along a county road; 0.8 mile east along county road and 40 feet south; in Thomas County:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; few nodules of ironstone; many fine roots; very strongly acid; abrupt smooth boundary.

A2—7 to 13 inches; light yellowish brown (2.5Y 6/4) loamy sand; weak fine granular structure; very friable; few nodules of ironstone; many fine roots; very strongly acid; clear smooth boundary.

B21t—13 to 24 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few medium distinct yellowish red (5YR 5/6) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine roots; common nodules of ironstone; few patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—24 to 32 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/8), light gray (10YR 7/2), and strong brown (7.5YR 5/6) mottles and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; patchy clay films on faces of peds and in pores; about 10 percent plinthite; 4 percent nodules of ironstone; very strongly acid; gradual wavy boundary.

B23t—32 to 62 inches; mottled strong brown (7.5YR 5/8), red (10R 4/8), light gray (10YR 7/2), and brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds and in pores; common fine pores; about 15 percent plinthite; 3 percent nodules of ironstone; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 7 to 16 inches in thickness. The Ap horizon has hue of 10YR, value of 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 3 or 4. Few to common nodules of ironstone are in the A horizon.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4, 6; or 8. It includes many medium and coarse yellowish brown, red, gray, and strong brown mottles. Plinthite content ranges from 10 to 22 percent, but plinthite is mostly in the lower part. Few to common nodules of ironstone are in the upper part of the Bt horizon, and few are in the lower part.

Coxville series

The Coxville series consists of deep, poorly drained, moderately slowly permeable soils that formed in loamy and clayey marine sediments. These are nearly level soils on bottom lands and flats of the Coastal Plain. The water table is at or near the surface during wet seasons and within 15 inches of the surface for 4 to 6 months each year. During wet seasons these soils are flooded for periods of 1 to 2 days. Slope is dominantly less than 1 percent but ranges to 2 percent.

Coxville soils are near Ocilla, Ousley, Rains, and Wahee soils. The somewhat poorly drained Ocilla soils have an A horizon 20 to 40 inches in thickness and are on somewhat higher landscapes. The moderately well drained Ousley soils are sandy throughout, do not have an argillic horizon, and are on higher landscapes. Rains soils are fine loamy and are on nearly level flats. The somewhat poorly drained Wahee soils mostly have chroma of 3 or more within 30 inches of the surface, and they are on somewhat higher lying landscapes.

Typical pedon of Coxville fine sandy loam, in a wooded area 2.5 miles east of Metcalf along county road and 50 feet north of road near Pine Creek; in Thomas County:

A1—0 to 3 inches; black (10YR 2/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots matted; strongly acid; abrupt wavy boundary.

A21g—3 to 6 inches; gray (10YR 5/1) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles and light brownish gray (2.5Y 6/2) mottles; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

A22g—6 to 14 inches; gray (10YR 5/1) fine sandy loam; weak fine granular structure; very friable; common medium roots; strongly acid; clear wavy boundary.

B1g—14 to 19 inches; gray (10YR 5/1) sandy clay loam; many stains of strong brown (7.5YR 5/6); weak medium subangular blocky structure; friable; few medium roots; strongly acid; clear wavy boundary.

B21tg—19 to 36 inches; gray (10YR 5/1) clay; common fine faint light gray mottles and common fine distinct yellowish red and strong brown mottles; moderate medium subangular blocky structure; firm, sticky and plastic; pockets and lenses of sandy loam; continuous clay films on most surfaces of peds; few medium roots; strongly acid; gradual wavy boundary.

B22tg—36 to 62 inches; coarsely mottled light gray (10YR 6/1), gray (10YR 5/1), yellowish red (5YR 4/6), and strong brown (7.5YR 5/8) clay; moderate medium subangular blocky structure; firm; sticky and plastic; strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except in limed areas.

The A horizon is 5 to 14 inches thick. The A1 or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1. The A2g horizon has hue of 10YR, value of 5 or 6, and chroma of 1.

The Bt horizon has hue of 10YR; value of 4, 5, 6, or 7; and chroma of 1. It includes common or many yellowish red, strong brown, and yellowish brown mottles. It is sandy clay or clay. Pockets of sandy loam are in some pedons.

Dasher series

The Dasher series consists of deep, very poorly drained, organic soils that have moderately rapid permeability. These soils formed in beds of hydrophytic plant remains. Dasher soils are in bays and depressions of the Coastal Plain. The water table is at or above the surface for about 10 months each year. Slope is less than 1 percent.

Dasher soils are near Bayboro soils, which formed in mineral material and are in somewhat high lying depressions.

Typical pedon of Dasher muck, in a field 1.6 miles south of intersection of State Highways 76 and 33; 0.9 mile south on a county road and 0.75 mile west; in Brooks County:

Oa1—0 to 8 inches; very dark brown (10YR 2/2) muck slightly stratified with less-decomposed dark brown (7.5YR 3/2) mucky peat; about 30 percent fiber, 12 percent rubbed; moderate medium subangular blocky structure; friable; estimated 5 percent mineral material; common clean sand grains; extremely acid; abrupt smooth boundary.

Oe1—8 to 24 inches; dark reddish brown (5YR 3/2) rubbed and unrubbed partially decomposed organic material; about 35 percent fiber, 20 percent rubbed; massive; friable; layered 1/8 to 1/4 inch thick; estimated 3 percent mineral material; extremely acid; gradual smooth boundary.

Oe2—24 to 65 inches; dark reddish brown (5YR 3/2) rubbed and unrubbed; about 50 percent fiber, 25 percent fiber rubbed; massive; friable; layered 1/8 to 1/4 inch thick; less decomposed than Oe1 horizon; estimated 3 percent mineral material; extremely acid; abrupt smooth boundary.

Thickness of the organic material ranges from 51 inches to more than 75 inches. Mineral content of the Oe horizon ranges from 3 to 5 percent.

The Oa1 horizon has hue of 10YR, value of 2 or 3, and chroma of 2. Fiber content is about 25 to 30 percent unrubbed and 12 to 15 percent rubbed.

The Oe1 horizon has hue of 5YR or 10YR, value of 3, and chroma of 2 or 3. Fiber content is about 35 to 50 percent unrubbed and 18 to 25 percent rubbed.

The Oe2 horizon has hue of 5YR or 10YR, value of 3, and chroma of 2 or 3. Fiber content is about 50 to 65 percent unrubbed and 25 to 35 percent rubbed.

Dothan series

The Dothan series consists of deep, well drained soils that have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. These soils formed in dominantly loamy marine sediments. Dothan soils are on uplands of the Coastal Plain. Slope is dominantly 3 percent but ranges from 0 to 5 percent.

Dothan soils are near Fuquay, Stilson, and Tifton soils. Fuquay and Stilson soils are arenic, but Stilson soils have chroma of 2 or less between depths of 30 and 40 inches, and they are lower on the landscape. Tifton soils commonly are on steeper landscapes and have more nodules of ironstone throughout.

Typical pedon of Dothan loamy sand, 2 to 5 percent slopes, in a cultivated field 0.5 mile northwest of Brooks County High School along Barwick Road and 100 feet north of road; in Brooks County:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; few fine roots; few small nodules of ironstone; slightly acid; abrupt wavy boundary.

B1—9 to 18 inches; yellowish brown (10YR 5/6) sandy loam with few pockets of loamy sand; weak medium subangular blocky structure; friable; few fine roots; few small nodules of ironstone; slightly acid; gradual smooth boundary.

B21t—18 to 42 inches; yellowish brown (10YR 5/8) sandy clay loam; few fine prominent yellowish red mottles; moderate medium subangular blocky structure; friable; few fine roots and pores; few clean sand grains; few small nodules of ironstone; 1 percent plinthite; strongly acid; gradual wavy boundary.

B22t—42 to 55 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct red (2.5YR 5/6) and light gray (5Y 7/2) mottles; moderate medium subangular blocky structure; friable; 5 to 8 percent plinthite; strongly acid; gradual wavy boundary.

B23t—55 to 62 inches; mottled light yellowish brown (10YR 6/4), light gray (2.5Y 7/2), red (2.5YR 4/8), and light reddish brown (5YR 6/4) sandy clay loam; weak medium subangular blocky structure; friable; 3 percent plinthite; strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Depth to horizons with plinthite content of 5 to 15 percent ranges from 30 to 48 inches.

The A horizon is less than 12 inches thick in more than 50 percent of the mapped areas but ranges to 20 inches. The Ap horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. The A2 horizon, if present, has hue of 10YR or 2.5Y, value of 6, and chroma of 4. Nodules of ironstone range from 2 to 4 percent, by volume, of the A2 horizon.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 through 7, and chroma of 6 or 8. It is dominantly sandy clay loam but ranges to sandy loam. The lower part of the Bt horizon includes many medium and coarse strong brown, yellow, red, yellowish red, and gray mottles. Nodules of ironstone make up 5 percent or less of the upper part of the Bt horizon.

Esto series

The Esto series consists of deep, well drained, slowly permeable soils that formed in dominantly clayey marine sediments. Esto soils are on uplands of the Coastal Plain. Slope is dominantly 6 percent but ranges from 2 to 12 percent.

Esto soils are near Carnegie, Faceville, and Orangeburg soils. Carnegie soils are fine loamy and are more than 5 percent plinthite within 60 inches of the surface. Faceville soils do not have mottles in the upper part of the argillic horizon. Orangeburg soils are fine loamy.

Typical pedon of Esto sandy loam, 5 to 12 percent slopes, in a wooded area 0.7 mile east of Mt. Phisgh Church along a county road; 3.5 miles north along county road and 70 feet east; in Thomas County:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; many fine roots; 2 to 3 percent small nodules of ironstone; strongly acid; clear smooth boundary.

B1—7 to 12 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common medium and fine roots; 2 to 3 percent small nodules of ironstone; strongly acid; gradual wavy boundary.

B21t—12 to 24 inches; yellowish red (5YR 5/6) sandy clay; common medium distinct red (2.5Y 4/8) mottles, weak medium subangular blocky structure; firm; patchy clay films on faces of peds; about 2 percent plinthite; strongly acid; gradual irregular boundary.

B22t—24 to 44 inches; mottled red (2.5YR 5/6), gray (N 7/0), yellowish brown (10YR 5/6), and light yellowish brown (2.5Y 6/4) clay; moderate medium subangular blocky structure; firm; clay films on faces of most peds; strongly acid; gradual irregular boundary.

B23t—44 to 62 inches; mottled light gray (5Y 6/1), yellow (10YR 7/6), brownish yellow (10YR 6/6), and dusky red (10R 3/4) clay; moderate medium subangular blocky structure; firm; clay films on faces of most peds; strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 9 inches in thickness. The Ap horizon has hue of 10YR; value of 3, 4, or 5; and chroma of 1 or 2. Nodules of ironstone range from 0 to 3 percent.

The B1 horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 or 6.

The upper part of the Bt horizon has hue of 10YR, 7.5YR, or 5YR; value of 5 or 6; and chroma of 4, 6, or 8. The middle and lower parts of the Bt horizon include many medium and coarse gray, red, yellow, and brown mottles. The Bt horizon is clay or sandy clay.

Faceville series

The Faceville series consists of deep, well drained, moderately permeable soils that formed dominantly in clayey marine sediments. Faceville soils are on uplands of the Coastal Plain. Slope is dominantly about 6 percent but ranges from 3 to 12 percent.

Faceville soils are near Esto, Orangeburg, and Tifton soils. Esto soils have mottles in the upper part of the argillic horizon. Orangeburg soils commonly share the landscape with Faceville soils, but they are fine loamy. Tifton soils are commonly on smoother landscapes, are fine loamy, and contain plinthite and many nodules of ironstone.

Typical pedon of Faceville loamy sand, 2 to 5 percent slopes, in a wooded area 100 feet south and 15 feet east along city limits road from its intersection with U.S. Highway 84 west of Thomasville; in Thomas County:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

A2—3 to 8 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

B1—8 to 11 inches; yellowish red (5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; common medium roots; very strongly acid; clear wavy boundary.

B21t—11 to 58 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—58 to 68 inches; yellowish red (5YR 4/8) sandy clay; common medium distinct yellowish brown (10YR 5/6) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of some peds; very strongly acid.

Solum thickness ranges from 65 to 70 inches or more. The soil is very strongly acid or strongly acid except for the surface layer in limed areas.

The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The Ap horizon, if present, has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 3, 4, 6, or 8. The A2 horizon has hue of 10YR or 7.5YR, value of 6, and chroma of 3 or 4. The A horizon is loamy sand or sandy loam. Nodules of ironstone range from few to none in the A horizon.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4, 6, or 8. Common yellow, brown, and red mottles are generally in the lower part of the Bt horizon. The Bt horizon is sandy clay or clay.

Fuquay series

The Fuquay series consists of deep, well drained soils that have moderate permeability in the upper part of the subsoil and slow permeability in the lower part. These soils formed in sandy and loamy marine sediments on Coastal Plain uplands. Slope is dominantly 3 percent but ranges from 1 to 5 percent.

Fuquay soils are near Dothan, Lakeland, and Stilson soils. Dothan soils have an A horizon less than 20 inches thick. Lakeland soils are sandy throughout and do not have an argillic horizon. Stilson soils have chroma of 2 or less between depths of 30 and 40 inches, and they are lower on the landscape.

Typical pedon of Fuquay loamy sand, 1 to 5 percent slopes, in a wooded area 7.8 miles northwest of Brooks County High School along Barwick Road and 60 feet south; in Brooks County:

A1—0 to 4 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—4 to 28 inches; light yellowish brown (2.5Y 6/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; gradual smooth boundary.

B1—28 to 39 inches; brownish yellow (10YR 6/6) sandy loam; few fine distinct strong brown mottles; weak medium subangular blocky structure; friable; common medium roots; very strongly acid; gradual wavy boundary.

B21t—39 to 50 inches; brownish yellow (10YR 6/6) sandy clay loam; few fine distinct strong brown mottles; weak medium subangular blocky structure; friable; few small nodules of ironstone; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—50 to 56 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles and yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; friable; about 10 percent plinthite; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—56 to 65 inches; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), yellowish red (5YR 4/8), and light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; friable; about 15 percent plinthite; few patchy clay films on faces of peds; very strongly acid.

Solum thickness exceeds 80 inches. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 20 to 40 inches in thickness. Nodules of ironstone range from none to few. The Ap or A1 horizon has hue of 10YR, value of 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8. The lower part of the Bt horizon includes common medium and coarse brown, yellowish red, red, and gray mottles. Plinthite content ranges from 10 to 15 percent in the lower part of the Bt horizon. Few to common nodules of ironstone are in the upper part of the Bt horizon.

Grady series

The Grady series consists of deep, poorly drained, slowly permeable soils that formed in clayey marine sediments. Grady soils are nearly level and are in depressions in the Coastal Plain uplands. The water table is within 12 inches of the surface for 6 or 7 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Grady soils are near Clarendon, Dothan, Stilson, and Tifton soils. The well drained Dothan and Tifton soils and the moderately well drained Clarendon soils contain plinthite and are on higher lying landscapes than Grady soils. The moderately well drained Stilson soils are arenic and are also on higher lying landscapes.

Typical pedon of Grady sandy loam, in a wooded area, 1.1 miles west of Mt. Phisgh Church along county road; 2.2 miles south along U.S. Highway 19; and 70 feet southwest of road; in Thomas County:

A1—0 to 5 inches; black (N 2/0) sandy loam; weak fine granular structure; very friable; many fine and medium roots; medium organic matter content; very strongly acid; abrupt smooth boundary.

B21tg—5 to 11 inches; gray (10YR 6/1) sandy clay; few medium faint dark gray (10YR 4/1) mottles; moderate medium subangular blocky structure; firm; many fine and medium roots; many root channels; many fine pores; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22tg—11 to 32 inches; gray (N 6/0) sandy clay; moderate medium subangular structure; firm; common medium roots, common root channels; common pores; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—32 to 53 inches; gray (N 6/0) sandy clay; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common medium roots; common root channels; common pores; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—53 to 65 inches; gray (5Y 6/1) sandy clay; common medium faint light gray (5Y 7/1) mottles and few fine distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; very strongly acid.

Solum thickness ranges from 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout.

The A horizon is 4 to 8 inches thick. The A1 or Ap horizon has hue of 10YR and N, value of 2 or 3, and chroma of 0 or 1.

The Bt horizon has hue of 10YR, 5Y, or N; value of 5 or 6; and chroma of 0 to 1. It includes common to many yellowish brown, brownish yellow, strong brown, red, and yellowish red mottles. The Bt horizon is dominantly sandy clay but ranges to clay.

Lakeland series

The Lakeland series consists of deep, excessively drained, very rapidly permeable soils that formed in sandy marine sediments. Lakeland soils are on uplands of the Coastal Plain. Slope is dominantly about 3 percent but ranges from 0 to 5 percent.

Lakeland soils are near Alapaha, Chipley, Fuquay, and Nankin soils. Alapaha soils are in drainageways and depressions, have an argillic horizon, and are poorly drained. Chipley soils are on smoother, lower lying slopes, have chroma of 2 or less between depths of 20 and 40 inches, and are seasonally wet. Fuquay and Nankin soils have an argillic horizon.

Typical pedon of Lakeland sand, 0 to 5 percent slopes, in a wooded area 0.8 mile east of bridge over Ochlockonee River along U.S. Highway 84; 0.5 mile southwest along woods road and 15 feet south of road; in Thomas County:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose, nonsticky; some clean uncoated white (10YR 8/1) sand grains; common fine and medium roots; strongly acid; clear smooth boundary.

C1—4 to 20 inches; yellowish brown (10YR 5/4) sand; single grained; loose, nonsticky; common fine and medium roots; common fine and medium pores; few uncoated sand grains; very strongly acid; gradual wavy boundary.

C2—20 to 42 inches; light yellowish brown (10YR 6/4) sand; single grained; loose, nonsticky; few medium roots; few uncoated sand grains; common medium pores; very strongly acid; gradual wavy boundary.

C3—42 to 53 inches; light yellowish brown (10YR 6/4) sand; few medium faint splotches of very pale brown (10YR 7/3); single grained; loose, nonsticky; few large pores; many uncoated sand grains; very strongly acid; gradual wavy boundary.

C4—53 to 80 inches; brownish yellow (10YR 6/6) sand; many medium splotches of very pale brown (10YR 7/3); single grained; loose, nonsticky; many uncoated sand grains; very strongly acid.

Thickness of the sand ranges from 80 to 86 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 3 to 6 inches in thickness. The A1 or Ap horizon has hue of 10YR; value of 3, 4, or 5; and chroma of 2.

The C horizon has hue of 10YR; value of 5, 6, or 7; and chroma of 3, 4, or 6. Small pockets of light gray or white sand are in some pedons below a depth of 40 inches.

Leefield series

The Leefield series consists of deep, somewhat poorly drained soils that are moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part. These soils formed in loamy and sandy marine sediments. They are nearly level, lower lying soils on uplands of the Coastal Plain. The water table is about 18 to 30 inches below the surface in late winter and early spring. Slope is dominantly less than 1 percent but ranges to 3 percent.

Leefield soils are near Alapaha, Fuquay, and Stilson soils. Alapaha soils are in lower lying depressions and drainageways and are poorly drained. Fuquay soils are on adjacent upland ridges and are well drained. Stilson soils are on somewhat higher landscapes and do not have chroma of 2 or less within 30 inches of the surface.

Typical pedon of Leefield loamy sand, in a cultivated field 1.2 miles east of bridge over Barnett's Creek on U.S. Highway 84; 1.5 miles south on private road and 200 feet south of road; in Thomas County:

Ap—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A21—6 to 10 inches; light brownish gray (2.5Y 6/2) loamy sand; few fine faint grayish brown and pale yellow mottles; weak fine granular structure; very friable; common fine roots; very strongly acid; clear wavy boundary.

A22—10 to 28 inches; light brownish gray (2.5Y 6/2) loamy sand; common medium distinct yellowish brown (10YR 5/8) and pale yellow (2.5Y 7/4) mottles; weak fine granular structure; very friable; many fine pores; very strongly acid; gradual smooth boundary.

B1—28 to 32 inches; light yellowish brown (2.5Y 6/4) sandy loam; common medium distinct light gray (N 7/0) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very friable; very strongly acid; clear smooth boundary.

B21t—32 to 56 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct light gray (10YR 7/1), yellowish brown (10YR 5/6), and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; some peds with yellowish red centers are firm; sand grains coated and bridged with clay; about 5 percent plinthite; few hard ironstone nodules; very strongly acid; gradual smooth boundary.

B22t—56 to 65 inches; reticulate mottled light gray (10YR 7/1), brownish yellow (10YR 6/6), and red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; about 10 percent plinthite; very strongly acid.

Solum thickness ranges from 60 to 68 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 20 to 40 inches in thickness. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4.

The Bt horizon is 20 to 40 inches thick or more. It has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 8. It is dominantly sandy clay loam, but ranges to sandy loam. The Bt horizon includes many medium or coarse brown, gray, yellow, red, and yellowish red mottles. Plinthite content ranges from 5 to 15 percent.

Lucy series

The Lucy series consists of deep, well drained, moderately permeable soils that formed in loamy and sandy marine sediments. Lucy soils are on uplands of the Coastal Plain. Slope is dominantly 3 percent but ranges from 0 to 8 percent.

Lucy soils are near Orangeburg and Faceville soils, which are arenic. Faceville soils also differ from Lucy soils in having a clayey B horizon.

Typical pedon of Lucy loamy sand, 0 to 5 percent slopes, in a cultivated field 1.7 miles southwest of juncture of State Highway 122 and U.S. Highway 319; 1.0 mile south along private road and 80 feet east; in Thomas County:

Ap—0 to 7 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; few fine roots; strongly acid; clear smooth boundary.

A21—7 to 17 inches; brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; few fine roots; very strongly acid; gradual smooth boundary.

A22—17 to 32 inches; strong brown (7.5YR 5/6) loamy sand; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

B1—32 to 40 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

B2t—40 to 65 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of some peds; very strongly acid.

Solum thickness ranges from 60 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 20 to 40 inches in thickness. The A1 or Ap horizon has hue of 10YR; value of 3, 4, or 5; and chroma of 2. The A2 horizon has hue of 10YR, 7.5YR, or 5YR; value of 4, 5, or 6; and chroma of 3, 4, 6, or 8.

The B1 horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Some pedons have yellow or brown mottles below a depth of 36 inches. The Bt horizon is dominantly sandy clay loam, but ranges to clay loam. In some places there are a few nodules of ironstone on the surface and throughout the soil; in other places there are none.

Mascotte series

The Mascotte series consists of deep, poorly drained, moderately permeable soils that formed in sandy and loamy marine sediments. These are nearly level soils on low flats of the Coastal Plain. The water table is within 10 inches of the surface for 1 to 4 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Mascotte soils are near Alapaha and Olustee soils. Alapaha soils have a plinthite content of more than 5 percent in the lower part of the subsoil, and they are on somewhat lower lying landscapes. Olustee soils do not have an A2 horizon and commonly share the landscape with Mascotte soils.

Typical pedon of Mascotte sand, in a wooded area 1.7 miles west of bridge over Little River along State Highway 94 and 100 feet south of road; in Brooks County:

A1—0 to 4 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear wavy boundary.

A2g—4 to 14 inches; light gray (10YR 6/1) sand; few fine faint dark gray mottles; single grained; loose; many fine roots; very strongly acid; abrupt wavy boundary.

B21h—14 to 19 inches; dark reddish brown (5YR 3/2) sand; weak medium subangular blocky structure; weakly cemented; firm; common medium roots; many sand grains coated with organic matter; very strongly acid; clear wavy boundary.

B22h—19 to 23 inches; brown (7.5YR 4/4) sand; common medium distinct pale brown (10YR 6/3) mottles; weak fine granular structure; weakly cemented; friable; many sand grains thinly coated with organic matter; common uncoated sand grains; very strongly acid; gradual wavy boundary.

A'2—23 to 35 inches; pale brown (10 YR 6/3) sand; common medium faint yellowish brown mottles and very pale brown mottles; single grained; loose; very strongly acid; clear wavy boundary.

B2tg—35 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of some peds; very strongly acid.

Depth to the underlying argillic horizon is 32 to 40 inches. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 10 to 18 inches thick. The A1 horizon has hue of 10YR; value of 2, 3, or 4; and chroma of 1. The A2g horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2.

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

The A'2 horizon has hue of 10YR, value of 6 or 7, and chroma of 3. It has brown and gray mottles.

The B'tg horizon has hue of 10 YR, value of 6 or 7, and chroma of 1 or 2. It has yellow, brown, and red mottles and is sandy loam or sandy clay loam.

Myatt series

The Myatt series consists of deep, poorly drained soils that are moderately permeable to moderately slowly permeable. These are nearly level soils on low terraces of the Coastal Plain. They formed in loamy sediments. These soils are frequently flooded for brief periods. The water table is within 12 inches of the surface for about 6 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Myatt soils are near Osier soils. Osier and Myatt soils are on the same bottom-land landscape, but Osier soils are siliceous.

Typical pedon of Myatt fine sandy loam, in an area of Myatt-Osier association, in a wooded area 300 feet west of a bridge over Little River on State Highway 94 and 40 feet north of road; in Brooks County:

A1—0 to 5 inches; dark gray (10YR 4/1) fine sandy loam; moderate fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A2g—5 to 12 inches; gray (10YR 6/1) fine sandy loam; common medium faint gray (10YR 5/1) mottles and few fine distinct yellowish brown mottles; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B21tg—12 to 28 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and common medium faint light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds; few fine pores; common medium roots; very strongly acid; gradual wavy boundary.

B22tg—28 to 55 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; sticky; few patchy clay films on faces of peds; few pores; few sand lenses; very strongly acid; gradual wavy boundary.

IICg—55 to 65 inches; mottled gray (10YR 6/1), light gray (10YR 7/1), and yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; very strongly acid.

Solum thickness ranges from 40 to 60 inches. It is strongly acid or very strongly acid throughout.

The A horizon is less than 12 inches thick in more than 50 percent of any pedon, but ranges to 15 inches in thickness. It has hue of 10YR, value of 3 to 6, and chroma of 1 or 2.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1. Common or many yellowish brown mottles are throughout the horizon.

The IIC horizon has hue of 10YR, value of 5 or 6, and chroma of 1. It is loamy sand or sandy loam and has common or many yellowish brown, brownish yellow, and light gray mottles.

Soils in this survey and those that have less than 20 percent minimum silt content were considered to belong to the Myatt series. Their behavior is essentially like that of Myatt soils in other places.

Nankin series

The Nankin series consists of deep, well drained, moderately slowly permeable soils that formed in loamy and clayey marine sediments. Nankin soils are on uplands of the Coastal Plain. Slope is dominantly about 6 percent but ranges from 2 to 8 percent.

Nankin soils are near Dothan and Fuquay soils. Dothan soils in most places are on smoother landscapes, are fine loamy, and have a plinthite content of more than 5 percent in the lower part of the Bt horizon. Fuquay soils are arenic and have a plinthite content of more than 5 percent between depths of 45 and 60 inches.

Typical pedon of Nankin sandy loam, 5 to 8 percent slopes, in a cultivated field 400 yards west of State Highway 33 in Nankin on a county road and 100 feet south; in Brooks County:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; friable; many fine roots; few nodules of ironstone; strongly acid; clear smooth boundary.

B1—8 to 13 inches; strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; few nodules of ironstone; few fine discontinuous pores; strongly acid; clear wavy boundary.

B21t—13 to 28 inches; yellowish red (5YR 5/6) sandy clay; few fine distinct yellowish red and yellowish brown mottles; moderate medium subangular blocky structure; firm; few fine roots mostly between peds; thin patchy clay films on faces of peds; few nodules of ironstone; few very fine discontinuous pores; very strongly acid; clear wavy boundary.

B22t—28 to 38 inches; mottled yellowish red (5YR 5/6), light yellowish brown (2.5Y 6/4), and red (2.5YR 4/6) sandy clay loam; strong medium angular blocky structure in the upper and middle parts and moderate medium platy structure in the lower 3 inches; firm; continuous thick clay films on faces of peds; very strongly acid; abrupt wavy boundary.

B3—38 to 55 inches; mottled yellowish red (5YR 5/6), light gray (10YR 7/2), and weak red (10R 4/4) sandy clay loam; very pale brown (10YR 7/4) pockets and thin strata of loamy sand; weak medium subangular blocky structure; firm; thin patchy clay films on faces of some peds; very strongly acid; gradual wavy boundary.

C—55 to 65 inches; mottled red (2.5YR 5/6), very pale brown (10YR 7/3), and weak red (10R 4/4) sandy clay loam; very pale brown (10YR 7/4) pockets and thin strata of loamy sand; massive; very firm in place, friable if disturbed; very strongly acid.

Solum thickness ranges from 40 to 60 inches or more. It ranges from strongly acid to very strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 4 to 10 inches in thickness. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1, 2, or 3. Nodules of ironstone range from 0 to 4 percent, by volume, of the A horizon.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR; value of 4 or 5; and chroma of 4, 6, or 8. It is dominantly sandy clay or clay in the upper part and sandy clay loam or sandy clay in the lower part. The lower part of the Bt horizon has yellowish brown, red, very pale brown, and gray mottles. Plinthite content in the lower part of the Bt horizon ranges from 0 to 4 percent, and nodules of ironstone make up 0 to 2 percent of the lower part of the Bt horizon.

Norfolk series

The Norfolk series consists of deep, well drained, moderately permeable soils that formed dominantly in loamy marine sediments. Norfolk soils are on uplands of the Coastal Plain. Slope is dominantly 3 percent but ranges from 0 to 5 percent.

Norfolk soils are near Orangeburg, Faceville, and Stilson soils. Orangeburg soils are on higher lying ridges on uplands and have a Bt horizon with hue of 5YR and 2.5YR. Faceville soils are on higher lying, broken uplands, and they are clayey. Stilson soils are on lower and smoother landscapes, and they have mottles with chroma of 2 or less within 30 to 40 inches of the surface.

Typical pedon of Norfolk loamy sand, 2 to 5 percent slopes, in a cultivated area 1.0 mile east of bridge over Ochlockonee River on U.S. Highway 84 and 50 feet southwest; in Thomas County:

Ap—0 to 8 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

A2—8 to 12 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; some dark colored material in old root channels; very strongly acid; clear wavy boundary.

B1—12 to 15 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few medium roots; very strongly acid; clear wavy boundary.

B21t—15 to 48 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; thin discontinuous clay films on faces of peds; many fine pores; very strongly acid; gradual wavy boundary.

B22t—48 to 65 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine distinct strong brown, yellowish red, and very pale brown mottles; weak medium subangular blocky structure; friable; thin discontinuous clay films on faces of some peds; common fine pores; very strongly acid.

Solum thickness ranges from 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 9 to 18 inches in thickness. The A2 horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 4. In some places there are a few nodules of ironstone in the A horizon; in other places there are none.

The B1 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8. The lower part of the Bt horizon has strong brown, very pale brown, and yellowish red mottles. Plinthite content is less than 5 percent within 60 inches of the surface.

Ochlockonee series

The Ochlockonee series consists of deep, well drained, moderately permeable soils that formed in stratified sandy and loamy alluvium. These soils are in drainageways of the Coastal Plain. The water table is within 36 inches of the surface late in winter and early in spring. During wet seasons this soil is flooded for periods of 1 to 2 days. Slope ranges from 0 to 2 percent.

Ochlockonee soils are near Faceville, Lucy, and Orangeburg soils. These associated soils are on higher lying landscapes and have argillic horizons.

Typical pedon of Ochlockonee loamy sand, in a wooded area 3.8 miles north of Sanctum Church on U.S. Highway 19 and 100 feet east; in Thomas County:

A11—0 to 6 inches; dark brown (7.5YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A12—6 to 11 inches; brown (7.5YR 4/4) sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear wavy boundary.

C1—11 to 20 inches; dark brown (7.5YR 4/2) sandy loam; massive; friable; common medium roots; thin strata of loamy sand and sand; very strongly acid; clear wavy boundary.

C2—20 to 40 inches; brown (7.5YR 4/4) loamy sand; single grained; very friable; common medium roots; few strata of sandy loam about 1/2 inch thick; very strongly acid; clear wavy boundary.

Ab—40 to 48 inches; yellowish red (5YR 4/6) sandy loam; weak medium granular structure; very friable; very strongly acid; clear wavy boundary.

B2tb—48 to 65 inches; red (2.5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; very strongly acid.

Depth to buried horizons ranges from 38 to 50 inches. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 8 to 11 inches thick. This horizon has hue of 7.5YR or 10YR; value of 3, 4, or 5; and chroma of 2 or 4.

The C horizon is 12 to 40 inches thick. It has hue of 7.5YR and 10YR; value of 4, 5, or 6; and chroma of 3, 4, or 6.

The Ab horizon is 8 to 14 inches thick. It has hue of 5YR or 7.5YR, value of 4, and chroma of 4 or 6.

The Bt horizon is 17 to 27 inches thick. It has hue of 2.5YR, 5YR, or 10YR; value of 4 or 5; and chroma of 6 or 8. It is dominantly sandy clay loam, but ranges to sandy loam. This horizon has light yellowish brown and strong brown mottles.

Ocilla series

The Ocilla series consists of deep, somewhat poorly drained, moderately permeable soils that formed in sandy and loamy sediments. These are nearly level soils on stream terraces of the Coastal Plain. The water table ranges from 12 to 30 inches below the surface in late winter and early spring. Slope is predominantly less than 1 percent but ranges to 2 percent.

Ocilla soils are near Ousley, Rains, and Wahee soils. Ousley soils are on higher lying terrace landscapes and are moderately well drained. Rains soils are on lower lying terrace landscapes and are poorly drained. Wahee soils share the same terrace landscapes with Ocilla soils, but have a clayey subsoil.

Typical pedon of Ocilla loamy sand, in an area of young planted pines 8 feet north of a field road; 0.7 mile north of a highway bridge over Ochlockonee River along U.S. Highway 84; in Thomas County:

A1—0 to 5 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

A21—5 to 11 inches; pale brown (10YR 6/3) loamy sand; common medium faint light brownish gray (10YR 6/2) mottles; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A22—11 to 28 inches; pale yellow (2.5Y 7/4) loamy sand; few fine faint light brownish gray mottles; weak fine granular structure; very friable; common medium roots; very strongly acid; clear wavy boundary.

B1—28 to 38 inches; light yellowish brown (2.5Y 6/4) sandy loam; common medium distinct light gray (10YR 7/1) mottles and few medium distinct yellowish brown (10YR 5/6) mottles; weak medium granular structure; friable; few medium roots; very strongly acid; gradual wavy boundary.

B21t—38 to 52 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct light gray (10YR 7/1) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; about 2 percent plinthite; very strongly acid; gradual wavy boundary.

B22t—52 to 65 inches; olive yellow (2.5Y 6/6) sandy clay loam; many medium distinct light gray (10YR 7/1) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Solum thickness ranges from 72 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 40 inches thick. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 5 through 7, and chroma of 2, 3, or 4.

The Bt horizon is 20 to 45 inches thick. It has hue of 10YR, 7.5YR, or 2.5Y; value of 5, 6, or 7; and chroma of 1 through 8. It is dominantly sandy clay loam but ranges to sandy loam. The Bt horizon has many medium or coarse gray, strong brown, yellowish brown, and yellowish red mottles. Plinthite content ranges from 0 to 3 percent.

Olustee series

The Olustee series consists of deep, poorly drained soils that are moderately permeable except for the rapidly permeable A1 and A'2 horizons. These soils formed in sandy and loamy marine sediments in the flatwood section of the Coastal Plain. The water table is less than 12 inches from the surface for 4 to 5 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Olustee soils are near Alapaha and Mascotte soils. Alapaha soils are on somewhat lower lying landscapes and have plinthite content of more than 5 percent in the lower part of the subsoil. Mascotte soils share the same landscape with Olustee soils, but they have a distinct A2 horizon.

Typical pedon of Olustee sand, in a wooded area 4.0 miles west of a bridge over Little River along State Highway 94; 0.3 mile south on county road and 40 feet east; in Brooks County:

A1—0 to 6 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

Bh—6 to 12 inches; dark brown (7.5YR 3/2) sand; massive in place, crushes to weak fine granular structure; friable; weakly cemented; common fine roots; very strongly acid; clear smooth boundary.

B3&Bh—12 to 19 inches; dark brown (7.5YR 4/2) sand; few fine faint dark brown mottles; single grained; loose; common medium roots; very strongly acid; gradual wavy boundary.

A'2—19 to 35 inches; light gray (10YR 7/2) sand; few fine faint grayish brown mottles and very pale yellow mottles; single grained; loose; few medium roots; very strongly acid; gradual wavy boundary.

B'2tg—35 to 60 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds and in pores; very strongly acid.

This soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Depth to the B't horizon ranges from 32 to 40 inches.

The A horizon is 5 to 8 inches thick. It has hue of 10YR; value of 2, 3, or 4; and chroma of 1.

The Bh horizon has hue of 5YR, 7.5YR, and 10YR; value of 2 or 3; and chroma of 2.

The B3 & Bh horizon has hue of 7.5YR, value of 4 or 5, and chroma of 2.

The A'2 horizon has hue of 10YR, value of 6 or 7, and chroma of 2. It has yellow and brown mottles.

The B't horizon has hue of 10YR; value of 5, 6, or 7; and chroma of 1. It has common to many coarse yellowish brown, yellowish red, brownish yellow, and red mottles.

Orangeburg series

The Orangeburg series consists of deep, well drained, moderately permeable soils that formed dominantly in loamy marine sediments. Orangeburg soils are on uplands of the Coastal Plain. Slope is dominantly 3 percent but ranges from 2 to 12 percent.

Orangeburg soils are near Faceville, Dothan, Lucy, and Tifton soils. Faceville soils commonly are on the same landscape as Orangeburg soils, but they have a clayey Bt horizon. Dothan and Tifton soils commonly are on smoother landscapes and have plinthite content of more than 5 percent in some horizons between depths of 24 and 50 inches. Lucy soils are arenic.

Typical pedon of Orangeburg loamy sand, 2 to 5 percent slopes, in a wooded area 3.0 miles north of the Georgia-Florida State line along U.S. Highway 19 and 300 yards east; in Thomas County:

A11—0 to 6 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

A12—6 to 13 inches; brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B1—13 to 18 inches; yellowish red (5YR 4/8) sandy loam; weak medium subangular blocky structure; friable; few medium roots; very strongly acid; clear wavy boundary.

B21t—18 to 55 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of some peds; very strongly acid; gradual wavy boundary.

B22t—55 to 65 inches; red (2.5YR 4/8) sandy clay loam; few fine prominent yellowish brown mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of some peds; very strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 5 to 20 inches in thickness. The Ap horizon has hue of 10YR or 7.5YR, value of 4, and chroma of 2, 3, or 4. The A2 horizon, if present, has hue of 10YR, value of 5, and chroma of 3, 4, or 6. The Ap horizon is loamy sand or sandy loam. In some places there are a few nodules of ironstone in the A horizon.

The B1 horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4, 6, or 8.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. The lower part of the Bt horizon has common brown mottles. The Bt horizon is commonly sandy clay loam but ranges to sandy clay.

Osier series

The Osier series consists of deep, poorly drained, rapidly permeable soils that formed in sandy alluvial sediments. These nearly level soils are on bottom lands of the Coastal Plain and are frequently flooded for brief periods. A water table is less than 12 inches from the surface for about 6 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Osier soils are near Myatt and Pelham soils. Myatt soils are on slightly higher lying areas away from the stream channel and have a fine loamy control section. Pelham and Osier soils are on the same bottom lands, but Pelham soils are arenic.

Typical pedon of Osier loamy fine sand, in an area of Osier and Pelham soils, in a wooded area 100 feet southwest of a bridge over Okapilco Creek on State Highway 76 and 80 feet south; in Brooks County:

A1—0 to 4 inches; dark gray (10YR 4/1) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; thin strata of sand; very strongly acid; clear wavy boundary.

C1g—4 to 8 inches; gray (10YR 5/1) sand; common medium faint dark grayish brown (10YR 4/2) mottles; thin dark gray strata of sandy loam; single grained; loose; common coarse and fine roots; very strongly acid; clear wavy boundary.

C2g—8 to 43 inches; dark gray (10YR 4/1) fine sand; common medium distinct grayish brown (10YR 5/2) mottles; gray strata of sand; single grained; loose; common, medium roots; very strongly acid; gradual wavy boundary.

C3g—43 to 52 inches; light brownish gray (10YR 6/2) sand; common medium faint gray (10YR 5/1) and grayish brown (10YR 5/2) mottles; light gray strata of coarse sand; single grained; loose; very strongly acid; gradual wavy boundary.

C4g—52 to 65 inches; light gray (10YR 7/2) sand; common medium distinct light brownish gray (10YR 6/2) mottles; very pale brown strata of coarse sand; single grained; loose; very strongly acid.

Thickness of the sandy layers is more than 72 inches. The soil is very strongly acid or strongly acid throughout. Thin strata ranging from sand to sandy loam are within most horizons.

The A horizon is less than 10 inches thick in more than 50 percent of the mapped areas but it ranges to 15 inches. It has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 or 2.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sand or fine sand. This horizon has few to common yellowish brown, grayish brown, and brownish yellow mottles.

Ousley series

The Ousley series consists of deep, moderately well drained, rapidly permeable soils that formed in sandy fluvial sediments. These are nearly level soils on low stream terraces within flood plains near large streams of the Coastal Plain. The water table is within 24 to 36 inches of the surface for 2 to 5 months each year. Ousley soils are flooded two or three times each year for periods of 2 or 3 days. Slope is dominantly about 1 percent but ranges to 2 percent.

Ousley soils are near Ocilla, Rains, and Wahee soils. The associated soils have argillic horizons. Ocilla and Wahee soils are on slightly lower lying landscapes and are somewhat poorly drained. Rains soils are in lower lying areas and are poorly drained.

Typical pedon of Ousley fine sand, in a wooded area 300 yards southwest of Blue Springs along a road and 15 feet west; in Brooks County:

A11—0 to 6 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; many fine and medium roots; strongly acid; clear wavy boundary.

A12—6 to 14 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

C1—14 to 36 inches; pale brown (10YR 6/3) fine sand; few medium distinct gray (5Y 6/1) mottles; single grained; loose; few medium roots; very strongly acid; gradual irregular boundary.

C2—36 to 65 inches; very pale brown (10YR 7/3) fine sand; common fine faint light gray mottles; single grained; loose; very strongly acid; gradual wavy boundary.

C3—65 to 80 inches; light gray (10YR 7/1) sand; common medium distinct light yellowish brown (10YR 6/4) mottles; single grained; loose; very strongly acid.

Thickness of the sand is 80 inches or more. The sand is very strongly acid or strongly acid throughout.

The A horizon ranges from 4 to 14 inches in thickness. It has hue of 10YR; value of 3, 4, or 5; and chroma of 1 or 2.

The C1 and C2 horizons have hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Because of wetness, mottles that have chroma of 2 or less are within 1 meter of the surface. They range from none to common in the C1 horizon and from few to common in the C2 horizon.

The C3 and C4 horizons have hue of 10YR, value of 6 or 7, and chroma of 2 or 3. These horizons have few to many gray, brown, and yellow mottles and are fine sand or sand.

Pelham series

The Pelham series consists of deep, poorly drained, moderately permeable soils that formed in sandy and loamy sediments. These are nearly level soils on bottom lands of the Coastal Plain. They are frequently flooded for brief periods. A water table is commonly 6 to 18 inches below the surface for about 4 months each year. Slope is dominantly less than 1 percent but ranges to 2 percent.

Pelham soils are near Osier soils. Osier and Pelham soils share the same landscape, but Osier soils are siliceous.

Typical pedon of Pelham loamy sand, in an area of Osier and Pelham soils, in a wooded area 440 yards southwest of Oak Grove Church on a county road and 60 feet south; in Brooks County:

A1—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; slightly stratified; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A2g—6 to 28 inches; light brownish gray (10YR 6/2) loamy sand; common medium faint dark gray (10YR 4/1) mottles; weak fine granular structure; slightly stratified; very friable; common medium roots; very strongly acid; clear wavy boundary.

B21tg—28 to 38 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds; few medium roots; very strongly acid; gradual wavy boundary.

B22tg—38 to 46 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of some peds; few sand strata; very strongly acid; gradual wavy boundary.

B23tg—46 to 64 inches; gray (10YR 6/1) sandy clay loam; many medium distinct yellowish brown (10YR 5/4) mottles and few medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few patchy clay films on faces of some peds; very strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 40 inches thick. It has hue of 10YR, value of 2 to 6, and chroma of 1 or 2.

The Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 1, 2, 6, or 8. It is sandy clay loam or sandy loam. This horizon has few to many strong brown and yellowish brown mottles.

Rains series

The Rains series consists of deep, poorly drained, moderately permeable soils that formed in loamy fluvial and marine sediments. These are nearly level soils on flats and in slight depressions on stream terraces near the larger streams of the Coastal Plain. The water table is within 12 inches of the surface for 2 to 6 months each year. During wet seasons, this soil is flooded more than once each year for periods of 2 to 4 days. Slope is dominantly less than 1 percent, but ranges to 2 percent.

Rains soils are near Ocilla, Ousley, and Wahee soils. Ocilla soils are on higher lying landscapes, are somewhat poorly drained, and are arenic. Ousley soils are on higher lying landscapes, are moderately well drained, and do not have a Bt horizon. Wahee soils are on slightly higher landscapes, are somewhat poorly drained, and are clayey.

Typical pedon of Rains loamy sand, in a wooded area 0.8 mile east of Mt. Phisgh Church along State Highway 188; 2.6 miles north on county road; 0.8 mile west along county road and 50 feet north; in Thomas County:

A1—0 to 5 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2g—5 to 16 inches; light brownish gray (10YR 6/2) loamy sand; common medium faint light brownish gray (2.5Y 6/2) mottles; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B1g—16 to 24 inches; gray (10YR 6/1) sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few medium roots; very strongly acid; gradual wavy boundary.

B21tg—24 to 46 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; few medium roots; very strongly acid; gradual wavy boundary.

B22tg—46 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of some peds; very strongly acid.

Solum thickness ranges from 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 6 to 16 inches thick. The A1 or Ap horizon has hue of 10YR; value of 2, 3, or 4; and chroma of 1 or 2.

The A2g horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 1.

The Bt horizon has hue of 10YR or N, value of 6, and chroma of 0 or 1. It has common to many yellowish brown, strong brown, brownish yellow, and yellowish red mottles.

Stilson series

The Stilson series consists of deep, moderately well drained, moderately permeable soils that formed in sandy and loamy marine sediments. These are nearly level soils on uplands of the Coastal Plain. The water table is perched within 30 to 36 inches of the surface in late winter and early spring. Slope is dominantly less than 1 percent but ranges to 3 percent.

Stilson soils are near Dothan, Leefield, and Alapaha soils. Dothan soils are on higher lying landscapes, are well drained, and have an A horizon less than 20 inches thick. Leefield soils are on slightly lower lying landscapes and have mottles with chroma of 2 or less within 30 inches of the surface. Alapaha soils are in drainageways and depressions and have dominant chroma of 2 or less in the Bt horizon.

Typical pedon of Stilson loamy sand, in an area 0.9 mile northeast of Dillon Church along county road and 40 feet west; in Thomas County:

A1—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A21—6 to 19 inches; grayish brown (2.5Y 5/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A22—19 to 36 inches; pale yellow (2.5Y 7/4) loamy sand; few fine distinct brownish yellow mottles; weak fine granular structure; very friable; few medium roots; very strongly acid; gradual wavy boundary.

B21t—36 to 46 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; patchy clay films on some faces of peds; very strongly acid; gradual wavy boundary.

B22t—46 to 62 inches; brownish yellow (10YR 6/6) sandy clay loam; many medium distinct light gray (10YR 7/1), strong brown (7.5YR 5/8), yellowish red (5YR 7/8), and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of some peds; 10 to 15 percent plinthite; very strongly acid; gradual wavy boundary.

The solum is 60 to 70 inches or more thick. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. In some places there are a few nodules of ironstone throughout the soil; in other places there are none.

The A horizon is 20 to 40 inches thick. The A1 and Ap horizons have hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 2 or 4.

The Bt horizon has hue of 2.5Y or 10YR, value of 6, and chroma of 4 or 6. Few to common gray mottles are at a depth of 30 to 40 inches. The lower part of the Bt horizon has distinct or prominent mottles of gray, red, yellowish red, yellowish brown, and strong brown. The Bt horizon is commonly sandy clay loam, but it is sandy loam in some places. Plinthite ranges from 5 to 15 percent in the lower part of the Bt horizon.

Tifton series

The Tifton series consists of deep, well drained, moderately permeable soils that formed dominantly in loamy marine sediments. Tifton soils are on uplands of the Coastal Plain. Slope is dominantly 3 percent but ranges from 0 to 8 percent (fig. 15).

Tifton soils are near Carnegie, Clarendon, and Dothan soils. Carnegie soils, in most places, are on steeper hillsides and have a subsoil with plinthite closer to the surface than in Tifton soils. Clarendon soils are in lower lying areas and have chroma of 2 or less within 30 inches of the surface. Dothan soils are on smoother landscapes and contain fewer nodules of ironstone and less plinthite than Tifton soils.

Typical pedon of Tifton loamy sand, 2 to 5 percent slopes, in a peach orchard 0.8 mile east of Barney on State Highway 122; 300 yards south on a county road and 40 feet east; in Brooks County:

Apcn—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; many small nodules of ironstone 1/8 to 1/2 inch in diameter; strongly acid; abrupt smooth boundary.

A2cn—8 to 11 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; many small nodules of ironstone; strongly acid; clear smooth boundary.

B1cn—11 to 14 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; very friable; common fine and medium roots; many small nodules of ironstone; very strongly acid; clear smooth boundary.

B21tcn—14 to 42 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common medium roots; thin patchy clay films on faces of peds; common to many small nodules of ironstone; very strongly acid; gradual smooth boundary.

B22t—42 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct red (2.5YR 4/8) mottles; few fine distinct yellowish brown (10YR 5/8) and pale yellow (2.5Y 7/4) mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; few small nodules of ironstone; 15 percent plinthite; very strongly acid; gradual smooth boundary.

B23t—50 to 65 inches; strong brown (7.5YR 5/8) sandy clay loam; many coarse distinct red (2.5YR 4/8), yellowish brown (10YR 5/8), and very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; 20 percent plinthite; very strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid throughout except for the surface layer in limed areas.

The A horizon is less than 12 inches thick in more than 50 percent of all pedons but ranges to 20 inches in thickness. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The A2 horizon, if present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. Nodules of ironstone range from 10 to 25 percent, by volume, of the A horizon.

The Bt horizon has hue of 10YR and 7.5YR, value of 5, and chroma of 4 through 8. The lower part of the Bt horizon has red and brown mottles. Plinthite content ranges from 10 to 25 percent in the lower part of the Bt horizon. Nodules of ironstone range from 10 to 20 percent in the upper part of the Bt horizon and from 5 to 10 percent in the middle part.

Wahee series

The Wahee series consists of deep, somewhat poorly drained, slowly permeable soils that formed in loamy and clayey sediments. These soils are on terraces near the larger streams of the Coastal Plain. The water table is within 12 inches of the surface in late winter and early spring. During wet seasons, this soil is flooded several times each year for periods of 2 to 4 days. Slope is dominantly less than 1 percent but ranges to 2 percent.

Wahee soils are near Ocilla, Ousley, and Rains soils. Ocilla soils are on the same landscape as Wahee soils but are arenic. Ousley soils are on higher lying landscapes, do not have a Bt horizon, and are moderately well drained. Rains soils are on lower lying terrace landscapes and have no horizon within 30 inches of the surface with dominant chroma of 3 or more.

Typical pedon of Wahee fine sandy loam, in an area of Wahee soils, in a wooded area 1.3 miles northeast of Lawson pond along county road; 0.4 mile east along woods road and 200 feet west; in Brooks County:

A1—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A2—4 to 10 inches; light brownish gray (10YR 6/2) fine sandy loam; few fine distinct yellowish brown mottles; weak fine granular structure; friable; many fine pores; many fine roots; very strongly acid; clear wavy boundary.

B1—10 to 14 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few fine distinct gray mottles; weak medium subangular blocky structure; friable; few fine roots and pores; very strongly acid; clear wavy boundary.

B21t—14 to 18 inches; yellowish brown (10YR 5/6) clay loam; few fine distinct gray mottles; moderate medium subangular blocky structure; firm; few fine roots and pores; very strongly acid; clear wavy boundary.

B22tg—18 to 36 inches; gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/6) mottles and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films on faces of peds, thick clay films on vertical faces of peds; very strongly acid; gradual wavy boundary.

B23tg—36 to 52 inches; gray (10YR 6/1) clay; many medium distinct yellowish brown (10YR 5/6) mottles and few medium prominent red (2.5YR 4/8) mottles; moderate medium angular blocky structure; firm; thick clay films on vertical faces of peds; very strongly acid; gradual wavy boundary.

B3g—52 to 65 inches; gray (10YR 6/1) sandy clay loam; many medium distinct yellowish brown (10YR 5/6) mottles and few medium distinct pale yellow (5Y 7/3) mottles; weak coarse subangular blocky structure; friable; very strongly acid.

Solum thickness is 60 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 10 inches thick. The A1 or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 2.

The B1 horizon is 4 to 6 inches thick and has hue of 10YR or 2.5Y, value of 6, and chroma of 4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1 through 4. It has common to many yellow, brown, and red mottles. The Bt horizon commonly is clay but ranges to clay loam. This horizon has gray mottles with chroma of 2 or less within its upper 10 inches.

The B3 horizon has hue of 10YR, value of 5 or 6, and chroma of 1. It has few to many brown and yellow mottles.

Formation of the soils

GLENN B. BRAMLETT, soil scientist, Soil Conservation Service, helped prepare this section.

In this section, the factors of soil formation are discussed and related to the formation of soils in the survey area, and the processes of soil formation are explained.

Soil is formed when parent material, climate, relief, and plants and animals interact for a period of time (*6*). These factors, including time, determine the nature of the soil that forms at any point on the earth. All of these factors affect the formation of each soil, but the relative importance of each factor differs from place to place. In some areas one factor may dominate in the formation of a soil and determine most of the soil properties. A common example is areas in which the parent material consists of pure quartz sand, which is highly resistant to weathering. Soils that formed in quartz sand generally have faint horizons. Even in quartz sand, however, a distinct profile can be formed under certain types of vegetation if the relief is low and flat and the water table is high. The five factors of soil formation are discussed in the paragraphs that follow.

Parent material

Parent material is the unconsolidated mass from which soil forms. It largely determines the chemical and mineral composition of a soil. In Brooks and Thomas Counties, the parent material of all soils is sediment that was deposited by water.

In both counties, differences in the parent material are largely the result of the manner in which the sand, silts, and clays were sorted and deposited by the ocean and streams many thousands of years ago. Different kinds of soils have formed because of these differences in sorting and deposition. In most soils, profile development is strong because the parent material has been above water and exposed to the soil-forming forces for a long time.

According to the Geologic Map of Georgia and Geologic Survey Information Circular 34, the parent materials of the soils in the two counties weathered from the Citronelle Formation, Hawthorn Formation, and the Suwannee Limestone of the Tertiary Period and Pleistocene Sands of the Quaternary Period. The oldest deposit, or geologic formation, is the Suwannee Limestone in a narrow band parallel to Withlacoochee Creek in the southeastern part of Brooks County. Osier and Pelham soils are the major soils that formed in this area.

Most of the survey area is underlain by the Hawthorn Formation. The major soils that formed in this area are Tifton, Alapaha, and Dothan soils. These soils are in varying patterns throughout the area, intermixed chiefly with smaller areas of Carnegie, Leefield, and Orangeburg soils.

Sandy soils such as the Lakeland and Chipley soils formed in the Pleistocene Sands and the Citronelle Formation.

Climate

Climate, particularly temperature and rainfall, largely determines the rate and nature of the physical, chemical, and biological processes that affect the weathering of soil material. Rainfall, freezing, thawing, wind, and sunlight have much to do with the breakdown of rocks and minerals, the release of chemicals, and other processes that affect the development of soils. The amount of water that percolates through the soil depends on rainfall, relative humidity, soil permeability, and physiographic position. Temperature influences the kinds and growth of organisms and the speed of physical and chemical reactions in the soils.

The warm, humid climate of Brooks and Thomas Counties is characterized by long, hot summers and short, mild winters. The average rainfall is 50 inches per year. Because much of the water from rainfall percolates through the soil and moves dissolved or suspended materials downward, the soils are generally low in bases. The rainfall is generally well enough distributed that the soils are moist most of the year. Because the surface soil is frozen for only short periods, freezing and thawing have little effect on the development of the soils. The climate throughout the survey area is uniform and has had about the same effect on soil development in all parts. As is normal in this climate, most of the soils on uplands in Brooks and Thomas Counties are highly weathered, leached, strongly acid, low in natural fertility, and low in content of organic matter.

Relief

Relief, through its effect on drainage, erosion, plant cover, and temperature, modifies the effect of climate and vegetation on soil formation.

Soils on low flats and in depressions have a high water table and are flooded each year. The soils in these areas are moderately well drained to poorly drained and have a gray or mottled subsoil. Grady and Rains soils formed in low areas. On broad ridges, the water table is several feet below the surface, and soils in these areas are not flooded. The soils commonly are well drained and are dominantly red to yellow. Orangeburg, Tifton, Dothan, and Fuquay soils formed in the higher areas.

Where the surface is level or nearly level, water has more time to penetrate the soil and percolate through it. This influences the solution and translocation of soluble materials. The moisture available in the soil also determines, to a significant extent, the amount and kinds of plants that grow. Thus, steep soils, even those that have a slowly permeable surface layer, are generally drier and support less vegetation than level or nearly level soils.

The soils in Brooks and Thomas Counties are mostly nearly level to gently sloping but range to strongly sloping. The landscape is not extremely hilly, however, and the effect of relief on soil temperature is less pronounced than it is in more hilly and mountainous areas. In Brooks and Thomas Counties, soil temperature is affected more by differences in drainage than by relief.

Plants and animals

Plants, animals, bacteria, and other organisms are active in the soil-forming processes. The changes they bring about depend mainly on the kinds of life processes peculiar to each. The kinds of plants and animals that live on and in the soil are affected, in turn, by climate, parent material, relief, and age of the soil.

Most of the soils in Brooks and Thomas Counties formed under forests of various kinds of hardwoods and pines, and these trees supply most of the organic matter to the soils. The hardwoods contribute more than the softwoods, but the content of organic matter in most of the soils is generally low.

Plants provide a cover that helps to reduce erosion and stabilize the surface so that the soil-forming processes can continue. Leaves, twigs, roots, and entire plants accumulate on the surface of soils under forest and then decompose as the result of the action of percolating water and of micro-organisms, earthworms, and other forms of life. Also, the uprooting of trees by wind significantly influences the formation of soils by mixing the soil layers and loosening the underlying material.

Small animals, earthworms, insects, and micro-organisms also influence the formation of soils by mixing organic matter into the soil and by helping to break down the remains of plants. Small animals burrow into the soils and thus mix the layers. Earthworms and other small invertebrates feed on the organic matter in the upper few inches. They slowly but continually mix the soil material and in places alter it chemically. Bacteria, fungi, and other micro-organisms hasten the weathering of rocks and the decomposition of organic matter.

Time

Generally, a long time is required for a soil to form, but the length of time required for the formation of a mature soil depends upon the other soil-forming factors. A mature soil profile is one in which the zone of eluviation (A horizon) and of illuviation (B horizon) are easily recognized. Less time is required for a soil to develop in a humid, warm area where the vegetation is plentiful than in a dry or cold area where the vegetation is sparse. Generally, less time is required if the parent material is coarse textured than if it is fine textured.

Older soils show a greater degree of horizon differentiation than younger ones. For example, the processes of soil formation have been active on the smoother uplands in the two counties for a long time. These soils, therefore, have well-defined horizons. Faceville, Esto, and Lucy soils are examples of these older soils. Along the streams the soil material has not been in place long enough for well-differentiated horizons to develop. Osier and Ochlockonee soils are examples of the younger soils.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

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—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to frequent flooding.

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.

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 film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Coarse textured (light textured) soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Complex, soil. A mapping unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.

Compressible. Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). 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 40 or 80 inches (1 or 2 meters).

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

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.

Cutbanks cave. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

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 periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by running 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 the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake. 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.

Fine textured (heavy textured) soil. Sandy clay, silty clay, and clay.

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

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. 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; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May,* for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

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

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

Gleyed soil. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

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 up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table, which is the upper limit of saturation.

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.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming 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.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

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 A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered, but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

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.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

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.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

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

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

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand and loamy sand.

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. Inadequate strength for supporting loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is greater than that of organic soil.

Miscellaneous areas. Areas that have little or no natural soil, are too nearly inaccessible for orderly examination, or cannot otherwise be feasibly classified.

Moderately coarse textured (moderately light textured) soil. Sandy loam and fine sandy loam.

Moderately fine textured (moderately heavy textured) soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. 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).

Muck. Dark colored, finely divided, well decomposed organic soil material mixed with mineral soil material. The content of organic matter is more than 20 percent.

Munsell notation. A designation of color by degrees of the three single variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Plant nutrients are nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil; and carbon, hydrogen, and oxygen obtained largely from the air and water.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture.

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. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Piping. Moving water of subsurface tunnels or pipelike cavities in 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 a semisolid to a plastic state.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents that commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on exposure to 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, whereas ironstone cannot be cut but can be broken or shattered with a spade. Plinthite is one form of the material that has been called laterite.

Poor outlets. Surface or subsurface drainage outlets dificult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree 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 degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly 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

Relief. The elevations or inequalities of a land surface, considered collectively.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Shrink-swell. 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.

Sinkhole. A depression in a landscape where limestone has been locally 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 feet.

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.

Slow intake. The slow movement of water into the soil.

Soil. A natural, three-dimensional body at the earth's surface that 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.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use or management.

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 it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally 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. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by 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, silt loam, 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. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Trace elements. The chemical elements in soils, in only extremely small amounts, essential to plant growth. Examples are zinc, cobalt, manganese, copper, and iron.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

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.

Illustrations

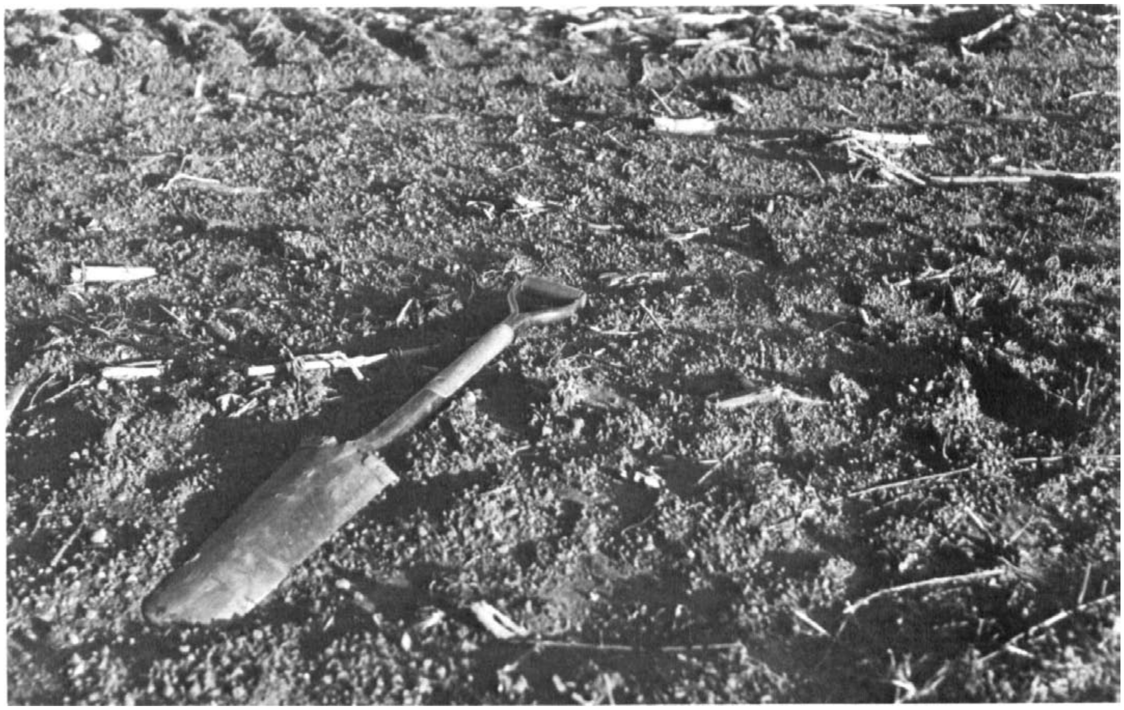

Figure 1.—The surface of Tifton loamy sand, 2 to 5 percent slopes, showing nodules of ironstone.

Figure 2.—Corn and peanuts on a well drained soil on uplands. A typical use for soils in the Tifton-Alapaha-Dothan map unit.

Figure 3.—Profile of Orangeburg loamy sand, 2 to 5 percent slopes. This soil is extensive in the survey area.

Figure 4.—Corn on Dothan loamy sand, 0 to 2 percent slopes. This soil has high potential for corn.

Figure 5.—Tiling is common in cultivated areas of Leefield loamy sand.

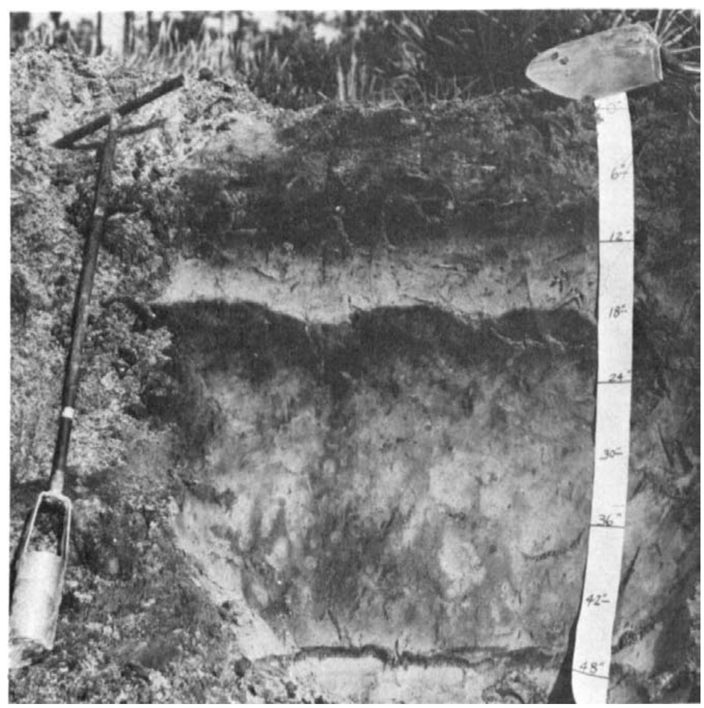

Figure 6.—Profile of Mascotte sand. This soil has low potential for most crops because of wetness.

Figure 7.—Cotton on Tifton loamy sand, 0 to 2 percent slopes. This soil has high potential for cotton.

Figure 8.—Bermudagrass hay harvested on Tifton loamy sand, 0 to 2 percent slopes.

Figure 9.—High pasture yields of improved bermudagrass on Tifton loamy sand, 2 to 5 percent slopes, contribute to high-quality dairy products.

Figure 10.—Peanuts on a terraced field of Tifton loamy sand, 2 to 5 percent slopes. This soil has high potential for peanuts.

Figure 11.—Peach orchard on Tifton loamy sand, 0 to 2 percent slopes.

Figure 12.—Pecan orchard and bahiagrass on Tifton loamy sand, 0 to 2 percent slopes. This soil has high potential for pecans.

Figure 13.—Pulpwood harvested from a managed stand of slash pine on Orangeburg loamy sand, 2 to 5 percent slopes.

Figure 14.—Plantation management of longleaf pine on Faceville loamy sand, 2 to 5 percent slopes. Thousands of acres of longleaf pine are on plantations in southwestern Thomas County.

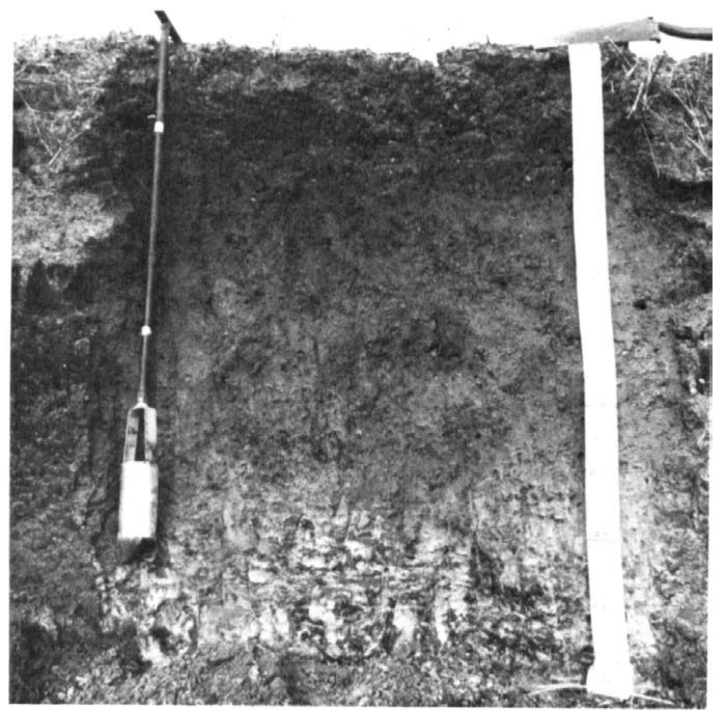

Figure 15.—Profile of Tifton loamy sand, 2 to 5 percent slopes. This soil is extensive in Brooks and Thomas Counties.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Recorded in the period 1951-74 at Thomasville, Ga.]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum higher than--	2 years in 10 will have-- Minimum lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	64.3	39.7	52.0	81	15	195	3.73	1.84	5.26	6	0
February---	66.4	41.2	53.8	81	20	190	4.90	2.82	6.59	7	0.2
March------	73.0	47.1	60.1	86	27	325	4.76	2.26	6.80	7	0
April------	80.4	54.2	67.3	91	36	519	4.20	1.48	6.57	4	0
May--------	86.6	60.9	73.8	97	44	735	3.79	1.55	5.60	6	0
June-------	90.3	67.0	78.7	100	55	861	5.71	2.87	8.02	8	0
July-------	91.4	69.7	80.6	99	61	949	6.02	4.07	7.78	10	0
August-----	91.3	69.2	80.3	99	60	939	4.71	2.79	6.42	8	0
September--	88.6	65.7	77.2	97	51	816	4.47	1.76	6.66	6	0
October----	81.1	54.6	67.9	94	32	555	1.97	.51	3.15	3	0
November---	71.9	44.5	58.2	86	23	254	2.22	.86	3.31	4	0
December---	65.4	40.1	52.8	81	19	176	3.89	2.02	5.41	6	0
Year-----	79.2	54.5	66.9	101	14	6,520	50.37	41.78	58.56	75	0.2

[1]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 1951-74 at Thomasville, Ga.

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--	March 2	March 18	April 2
2 years in 10 later than--	February 20	March 11	March 26
5 years in 10 later than--	February 1	February 25	March 14
First freezing temperature in fall:			
1 year in 10 earlier than--	November 15	November 4	October 25
2 years in 10 earlier than--	November 24	November 12	October 30
5 years in 10 earlier than--	December 11	November 26	November 9

TABLE 3.--GROWING SEASON LENGTH

[Recorded in the period 1951-74 at Thomasville, Ga.]

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	278	243	217
8 years in 10	289	253	224
5 years in 10	311	273	239
2 years in 10	336	293	253
1 year in 10	359	304	261

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Brooks County	Thomas County	Total-- Area	Extent
		Acres	Acres	Acres	Pct
Ap	Alapaha loamy sand	59,030	49,629	108,659	16.5
Bm	Bayboro loam	710	1,535	2,245	0.3
CaB2	Carnegie sandy loam, 2 to 5 percent slopes, eroded	1,310	780	2,090	0.3
CaC2	Carnegie sandy loam, 5 to 8 percent slopes, eroded	3,760	9,135	12,895	2.0
Ch	Chipley sand	2,610	1,950	4,560	0.7
Cn	Clarendon loamy sand	905	2,550	3,455	0.5
Co	Coxville fine sandy loam	395	3,915	4,310	0.7
Da	Dasher muck	1,295	195	1,490	0.2
DoA	Dothan loamy sand, 0 to 2 percent slopes	5,040	4,570	9,610	1.5
DoB	Dothan loamy sand, 2 to 5 percent slopes	21,065	21,340	42,405	6.4
EuB	Esto sandy loam, 2 to 5 percent slopes	100	895	995	0.2
EuD	Esto sandy loam, 5 to 12 percent slopes	600	1,035	1,635	0.3
FaB	Faceville loamy sand, 2 to 5 percent slopes	2,000	11,735	13,735	2.1
FaD	Faceville loamy sand, 8 to 12 percent slopes	160	1,475	1,635	0.3
FdC2	Faceville sandy loam, 5 to 8 percent slopes, eroded	2,680	13,905	16,585	2.5
FsB	Fuquay loamy sand, 1 to 5 percent slopes	24,295	14,515	38,810	5.9
Gr	Grady sandy loam	4,295	2,475	6,770	1.0
LaB	Lakeland sand, 0 to 5 percent slopes	7,505	3,380	10,885	1.6
Le	Leefield loamy sand	15,630	19,425	35,055	5.3
LmB	Lucy loamy sand, 0 to 5 percent slopes	2,705	3,835	6,540	1.0
LmC	Lucy loamy sand, 5 to 8 percent slopes	1,290	1,300	2,590	0.4
Mn	Mascotte sand	2,110	55	2,165	0.3
MO	Myatt-Osier association	3,925	0	3,925	0.6
NkB	Nankin sandy loam, 2 to 5 percent slopes	1,915	1,300	3,215	0.5
NkC	Nankin sandy loam, 5 to 8 percent slopes	5,580	3,455	9,035	1.4
NoA	Norfolk loamy sand, 0 to 2 percent slopes	20	210	230	(1)
NoB	Norfolk loamy sand, 2 to 5 percent slopes	1,055	5,670	6,725	1.0
Oc	Ochlockonee loamy sand	425	1,440	1,865	0.3
Od	Ocilla loamy sand	4,160	4,420	8,580	1.3
Oe	Olustee sand	930	340	1,270	0.2
OrB	Orangeburg loamy sand, 2 to 5 percent slopes	5,305	28,410	33,715	5.1
OrD	Orangeburg loamy sand, 8 to 12 percent slopes	170	695	865	0.1
OsC2	Orangeburg sandy loam, 5 to 8 percent slopes, eroded	4,250	13,305	17,555	2.7
OS	Osier and Pelham soils	13,895	14,805	28,700	4.3
Ou	Ousley fine sand	3,395	800	4,195	0.6
Ra	Rains loamy sand	5,600	2,620	8,220	1.2
Se	Stilson loamy sand	7,460	8,940	16,400	2.5
TfA	Tifton loamy sand, 0 to 2 percent slopes	10,125	9,210	19,335	2.9
TfB	Tifton loamy sand, 2 to 5 percent slopes	72,605	63,555	136,160	20.6
TsC2	Tifton sandy loam, 5 to 8 percent slopes, eroded	10,025	13,840	23,865	3.6
TuB	Tifton-Urban land complex, 0 to 5 percent slopes	500	2,900	3,400	0.5
WA	Wahee soils	3,090	760	3,850	0.6
	Total	313,920	346,304	660,224	100.0

[1]Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. The estimates were made in 1975. Absence of data indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Cotton lint	Soybeans	Peanuts	Grass hay	Improved bermuda-grass	Bahiagrass
	Bu	Lb	Bu	Lb	Ton	AUM[1]	AUM[1]
Alapaha:							
Ap	---	---	---	---	---	---	5.0
Bayboro:							
Bm	---	---	---	---	---	---	---
Carnegie:							
CaB2	65	500	30	2,500	4.0	6.5	7.0
CaC2	55	400	25	---	3.5	6.0	6.5
Chipley:							
Ch	50	---	20	2,200	---	8.0	7.5
Clarendon:							
Cn	110	700	40	---	---	10.5	10.0
Coxville:							
Co	---	---	---	---	---	---	---
Dasher:							
Da	---	---	---	---	---	---	---
Dothan:							
DoA	90	800	---	2,300	5.5	---	8.0
DoB	80	750	---	2,200	5.5	---	8.0
Esto:							
EuB	50	500	35	1,700	4.0	6.0	6.0
EuD	---	---	---	---	3.2	5.5	5.5
Faceville:							
FaB	105	875	40	3,800	5.8	10.0	7.0
FaD	70	500	25	2,500	4.0	7.0	5.0
FdC2	70	550	25	2,500	4.0	8.5	5.5
Fuquay:							
FsB	80	650	30	2,900	---	---	---
Grady:							
Gr	---	---	---	---	---	---	---
Lakeland:							
LaB	55	---	20	2,000	---	7.0	7.0
Leefield:							
Le	85	500	---	2,200	5.3	8.7	8.0
Lucy:							
LmB	80	650	---	3,000	5.5	---	8.5
LmC	70	600	---	2,500	5.0	---	8.5
Mascotte:							
Mn	50	---	20	---	---	---	8.0
Myatt:							
[2]MO:							
Myatt part	---	---	---	---	---	---	---
Osier part	---	---	---	---	---	---	5.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Cotton lint	Soybeans	Peanuts	Grass hay	Improved bermuda-grass	Bahiagrass
	Bu	Lb	Bu	Lb	Ton	AUM[1]	AUM[1]
Nankin:							
NkB	75	---	30	2,200	5.5	9.0	7.0
NkC	55	---	20	1,800	4.5	7.0	6.0
Norfolk:							
NoA	110	700	40	4,000	---	---	---
NoB	100	650	35	3,700	---	---	---
Ochlockonee:							
Oc	90	---	40	---	---	8.0	---
Ocilla:							
Od	65	---	30	---	---	8.5	8.0
Olustee:							
Oe	70	---	30	---	---	---	8.5
Orangeburg:							
OrB	100	850	45	3,800	---	10.5	8.5
OrD	80	650	30	2,800	---	9.0	7.0
OsC2	85	700	35	2,800	---	10.0	8.0
Osier:							
[2]OS:							
Osier part	---	---	---	---	---	---	5.0
Pelham part	---	---	---	---	---	---	---
Ousley:							
Ou	50	---	20	---	---	7.5	7.5
Rains:							
Ra	---	---	---	---	---	---	---
Stilson:							
Se	80	600	35	3,100	---	10.0	7.5
Tifton:							
TfA	100	950	46	---	6.2	10.5	8.5
TfB, [2]TuB	100	950	46	---	6.2	10.5	8.5
TsC2	80	650	34	---	5.5	9.0	7.0
Wahee:							
[2]WA	90	---	40	---	---	---	8.0

[1]Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
[2]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	31,040	---	---	---	---
II	339,615	239,355	54,910	45,350	---
III	86,590	70,125	9,315	7,150	---
IV	41,335	15,395	15,055	10,885	---
V	156,274	---	156,274	---	---
VI	3,880	1,635	2,245	---	---
VII	1,490	---	1,490	---	---
VIII	---	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that the information was not available]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Alapaha:								
Ap	2w2	Slight	Moderate	Slight	---	Slash pine	87	Slash pine,
						Loblolly pine	87	loblolly pine.
						Longleaf pine	70	
Bayboro:								
Bm	2w9	Slight	Severe	Severe	---	Loblolly pine	95	Slash pine,
						Sweetgum	94	loblolly pine,
						Slash pine	95	sweetgum,
						Yellow-poplar	---	water tupelo.
						Southern red oak	---	
						White oak	---	
Carnegie:								
CaB2, CaC2	2o1	Slight	Slight	Slight	---	Loblolly pine	86	Loblolly pine,
						Slash pine	86	slash pine.
						Longleaf pine	70	
Chipley:								
Ch	2s8	Slight	Moderate	Slight	Slight	Slash pine	90	Slash pine,
						Loblolly pine	90	loblolly pine.
						Longleaf pine	80	
Clarendon:								
Cn	2w8	Slight	Moderate	Slight	Slight	Loblolly pine	90	Loblolly pine,
						Slash pine	90	slash pine,
						Sweetgum	85	American sycamore,
								yellow-poplar,
								sweetgum.
Coxville:								
Co	2w9	Slight	Severe	Severe	---	Loblolly pine	90	Loblolly pine,
						Slash pine	90	slash pine,
						Longleaf pine	71	sweetgum,
						Sweetgum	90	American sycamore.
						Water oak	90	
						Willow oak	---	
						Water tupelo	---	
Dothan:								
DoA, DoB	2o1	Slight	Slight	Slight	---	Slash pine	90	Slash pine,
						Loblolly pine	90	loblolly pine,
						Longleaf pine	70	longleaf pine.
Esto:								
EuB, EuD	3o1	Slight	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine,
						Longleaf pine	65	slash pine.
						Slash pine	80	
Faceville:								
FaB, FaD, FdC2	3o1	Slight	Slight	Slight	---	Loblolly pine	82	Loblolly pine,
						Slash pine	80	slash pine.
						Longleaf pine	65	
Fuquay:								
FsB	3s2	Slight	Moderate	Moderate	---	Loblolly pine	83	Slash pine,
						Slash pine	83	longleaf pine.
						Longleaf pine	67	
Grady:								
Gr	2w9	Slight	Severe	Severe	---	Loblolly pine	90	Loblolly pine,
						Slash pine	88	slash pine,
						Sweetgum	90	American sycamore,
								water tupelo.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Important trees	Site index	Trees to plant
Lakeland:								
LaB	4s2	Slight	Moderate	Moderate	Slight	Slash pine	75	Slash pine,
						Loblolly pine	75	loblolly pine.
						Longleaf pine	60	
Leefield:								
Le	3w2	Slight	Moderate	Moderate	---------	Loblolly pine	84	Loblolly pine,
						Slash pine	84	slash pine.
						Longleaf pine	70	
Lucy:								
LmB, LmC	3s2	Slight	Moderate	Moderate	Slight	Slash pine	80	Slash pine,
						Longleaf pine	70	longleaf pine,
						Loblolly pine	80	loblolly pine.
Mascotte:								
Mn	3w2	Slight	Moderate	Moderate	Slight	Slash pine	80	Slash pine,
						Loblolly pine	80	loblolly pine.
						Longleaf pine	70	
Myatt:								
[1]MO:								
Myatt part	2w9	Slight	Severe	Severe	Moderate	Loblolly pine	95	Loblolly pine,
						Slash pine	92	slash pine.
						Sweetgum	92	
						Water oak	86	
Osier part	2w9	Slight	Severe	Severe	---------	Slash pine	80	Slash pine,
						Loblolly pine	80	loblolly pine.
						Longleaf pine	68	
Nankin:								
NkB, NkC	3o1	Slight	Slight	Slight	---------	Loblolly pine	80	Loblolly pine,
						Slash pine	80	slash pine.
						Longleaf pine	70	
Norfolk:								
NoA, NoB	2o1	Slight	Slight	Slight	---------	Loblolly pine	86	Slash pine,
						Longleaf pine	68	loblolly pine.
						Slash pine	86	
Ochlockonee:								
Oc	1o7	Slight	Slight	Slight	Slight	Eastern cottonwood	100	Loblolly pine,
						Loblolly pine	100	yellow-poplar,
						Yellow-poplar	110	eastern cottonwood.
						Slash pine	100	
						Sweetgum	90	
						Water oak	80	
Ocilla:								
Od	3w2	Slight	Moderate	Moderate	---------	Loblolly pine	79	Loblolly pine,
						Slash pine	80	slash pine.
						Longleaf pine	68	
Olustee:								
Oe	3w2	Slight	Moderate	Moderate	Slight	Slash pine	80	Slash pine,
						Loblolly pine	80	loblolly pine.
						Longleaf pine	70	
Orangeburg:								
OrB, OrD, OsC2	2o1	Slight	Slight	Slight	---------	Loblolly pine	86	Slash pine,
						Slash pine	86	loblolly pine.
						Longleaf pine	70	
Osier:								
[1]OS:								
Osier part	3w3	Slight	Severe	Severe	---------	Slash pine	80	Slash pine,
						Loblolly pine	80	loblolly pine.
						Longleaf pine	68	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Important trees	Site index	Trees to plant
Osier:								
[1]OS:								
Pelham part	3w3	Slight	Severe	Severe	---	Slash pine	90	Slash pine, loblolly pine.
						Loblolly pine	90	
						Longleaf pine	74	
						Sweetgum	80	
						Blackgum	80	
						Water oak	80	
Ousley:								
Ou	3w2	Slight	Moderate	Moderate	Slight	Loblolly pine	80	Slash pine, loblolly pine.
						Slash pine	80	
						Longleaf pine	70	
Rains:								
Ra	2w3	Slight	Severe	Severe	---	Loblolly pine	94	Loblolly pine, slash pine, sweetgum, American sycamore.
						Slash pine	91	
						Sweetgum	90	
Stilson:								
Se	3s2	Slight	Moderate	Slight	Slight	Loblolly pine	83	Slash pine, loblolly pine, longleaf pine.
						Slash pine	83	
						Longleaf pine	70	
						Sweetgum	---	
Tifton:								
TfA, TfB, TsC2	2o1	Slight	Slight	Slight	---	Loblolly pine	86	Loblolly pine, slash pine.
						Slash pine	86	
						Longleaf pine	68	
Wahee:								
[1]WA	2w8	Slight	Moderate	Moderate	---	Loblolly pine	86	Loblolly pine, slash pine, sweetgum, American sycamore, water oak.
						Slash pine	86	
						Sweetgum	90	

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 8.--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]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Alapaha:					
Ap	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Bayboro:					
Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Carnegie:					
CaB2	Slight	Slight	Slight	Slight	Slight.
CaC2	Slight	Slight	Slight	Moderate: slope.	Slight.
Chipley:					
Ch	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Clarendon:					
Cn	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, corrosive.	Slight.
Coxville:					
Co	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength.
Dasher:					
Da	Severe: wetness, excess humus, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.
Dothan:					
DoA, DoB	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight.
Esto:					
EuB	Moderate: too clayey.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Severe: low strength.
EuD	Moderate: too clayey.	Moderate: low strength.	Moderate: low strength.	Severe: slope.	Severe: low strength.
Faceville:					
FaB	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.
FaD	Moderate: too clayey.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength.
FdC2	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.
Fuquay:					
FsB	Slight	Slight	Slight	Slight	Slight.
Grady:					
Gr	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Lakeland:					
LaB	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Leefield:					
Le	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Lucy:					
LmB	Slight	Slight	Slight	Slight	Slight.
LmC	Slight	Slight	Slight	Moderate: slope.	Slight.
Mascotte:					
Mn	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Severe: wetness.
Myatt:					
[1]MO:					
Myatt part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Nankin:					
NkB	Moderate: too clayey.	Slight	Slight	Slight	Slight.
NkC	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight.
Norfolk:					
NoA, NoB	Slight	Slight	Slight	Slight	Slight.
Ochlockonee:					
Oc	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Ocilla:					
Od	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Olustee:					
Oe	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Severe: wetness.
Orangeburg:					
OrB	Slight	Slight	Slight	Slight	Slight.
OrD	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
OsC2	Slight	Slight	Slight	Moderate: slope.	Slight.
Osier:					
[1]OS:					
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Pelham part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Ousley:					
Ou	Severe: floods, cutbanks cave.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Rains:					
Ra	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness. floods.	Severe: wetness, floods, corrosive.	Severe: wetness, floods.
Stilson:					
Se	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight.
Tifton:					
TfA, TfB, [1]TuB	Slight	Slight	Slight	Slight	Slight.
TsC2	Slight	Slight	Slight	Moderate: slope.	Slight.
Wahee:					
[1]WA	Severe: wetness, floods, too clayey.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: floods, low strength.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 9.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," and "fair." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Alapaha:					
Ap	Severe: wetness, floods.	Severe: floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
Bayboro:					
Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Carnegie:					
CaB2, CaC2	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Chipley:					
Ch	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage.	Poor: too sandy, seepage.
Clarendon:					
Cn	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Coxville:					
Co	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Dasher:					
Da	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: wetness, seepage.
Dothan:					
DoA	Moderate: percs slowly.	Slight	Severe: wetness.	Moderate: wetness.	Good.
DoB	Moderate: percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Good.
Esto:					
EuB	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
EuD	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Faceville:					
FaB, FdC2	Slight	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
FaD	Moderate: slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Fuquay:					
FsB	Moderate: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Grady:					
Gr	Severe: floods, percs slowly, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too clayey.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Lakeland:					
LaB	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
Leefield:					
Le	Severe: wetness, percs slowly.	Moderate: wetness, seepage.	Severe: wetness.	Severe: wetness.	Good.
Lucy:					
LmB, LmC	Slight	Severe: seepage.	Slight	Slight	Fair: too sandy.
Mascotte:					
Mn	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: too sandy, seepage, wetness.
Myatt:					
[1]MO:					
Myatt part	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Osier part	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too sandy.
Nankin:					
NkB, NkC	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Fair: too clayey.
Norfolk:					
NoA	Slight	Moderate: seepage.	Slight	Slight	Good.
NoB	Slight	Moderate: slope, seepage.	Slight	Slight	Good.
Ochlockonee:					
Oc	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage, wetness.	Severe: floods.	Good.
Ocilla:					
Od	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Olustee:					
Oe	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: too sandy, seepage, wetness.
Orangeburg:					
OrB, OsC2	Slight	Moderate: slope, seepage.	Slight	Slight	Good.
OrD	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Osier:					
[1]OS:					
Osier part	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too sandy.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Osier:					
[1]OS:					
Pelham part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Ousley:					
Ou	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Poor: too sandy.
Rains:					
Ra	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
Stilson:					
Se	Severe: wetness.	Moderate: seepage.	Moderate: wetness.	Slight	Good.
Tifton:					
TfA	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
TfB, TsC2, [1]TuB	Moderate: percs slowly.	Moderate: slope, seepage.	Slight	Slight	Good.
Wahee:					
[1]WA	Severe: wetness, floods, percs slowly.	Slight	Severe: wetness, floods.	Severe: wetness, floods.	Poor: too clayey.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 10.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Alapaha: Ap	Poor: wetness.	Poor: excess fines.	Unsuited	Poor: wetness.
Bayboro: Bm	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
Carnegie: CaB2, CaC2	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Chipley: Ch	Good	Fair: excess fines.	Unsuited	Poor: too sandy.
Clarendon: Cn	Good	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Coxville: Co	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Dasher: Da	Poor: wetness, excess humus, low strength.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness.
Dothan: DoA, DoB	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Fair: thin layer.
Esto: EuB, EuD	Poor: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Faceville: FaB, FaD, FdC2	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Fuquay: FsB	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Grady: Gr	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
Lakeland: LaB	Good	Good	Unsuited	Poor: too sandy.
Leefield: Le	Fair: wetness.	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Lucy: LmB, LmC	Good	Poor: excess fines.	Poor: excess fines.	Poor: too sandy.
Mascotte: Mn	Good	Poor: excess fines.	Unsuited	Poor: too sandy.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Myatt:				
[1]MO:				
Myatt part	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Osier part	Poor: wetness.	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy, wetness.
Nankin:				
NkB, NkC	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer, too clayey.
Norfolk:				
NoA, NoB	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Ochlockonee:				
Oc	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
Ocilla:				
Od	Fair: wetness.	Poor: excess fines.	Unsuited	Poor: too sandy.
Olustee:				
Oe	Good	Poor: excess fines.	Unsuited	Poor: too sandy.
Orangeburg:				
OrB, OrD, OsC2	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Osier:				
[1]OS:				
Osier part	Poor: wetness.	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy, wetness.
Pelham part	Poor: wetness.	Poor: excess fines.	Poor: excess fines.	Poor: wetness.
Ousley:				
Ou	Good	Fair: excess fines.	Unsuited	Poor: too sandy.
Rains:				
Ra	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
Stilson:				
Se	Good	Poor: excess fines.	Poor: excess fines.	Poor: too sandy.
Tifton:				
TfA, TfB, TsC2, [1]TuB	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Wahee:				
[1]WA	Poor: low strength.	Unsuited	Unsuited	Poor: thin layer, area reclaim.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 11.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions
Alapaha:						
Ap	Slight	Moderate: piping, hard to pack.	Moderate: slow refill.	Poor outlets	Wetness, fast intake.	Not needed.
Bayboro:						
Bm	Slight	Moderate: shrink-swell.	Slight	Percs slowly	Wetness	Not needed.
Carnegie:						
CaB2	Moderate: seepage.	Slight	Severe: no water.	Not needed	Favorable	Favorable.
CaC2	Moderate: seepage.	Slight	Severe: no water.	Not needed	Slope	Favorable.
Chipley:						
Ch	Severe: seepage.	Severe: seepage, piping, unstable fill.	Moderate: deep to water.	Cutbanks cave	Fast intake	Not needed.
Clarendon:						
Cn	Moderate: seepage.	Moderate: compressible, piping.	Severe: deep to water.	Favorable	Favorable	Not needed.
Coxville:						
Co	Slight	Moderate: compressible.	Slight	Wetness, percs slowly.	Wetness, percs slowly.	Not needed.
Dasher:						
Da	Severe: seepage, excess humus.	Severe: seepage, excess humus, low strength.	Slight	Wetness, excess humus, floods.	Wetness, floods.	Not needed.
Dothan:						
DoA, DoB	Slight	Slight	Severe: no water.	Not needed	Favorable	Favorable.
Esto:						
EuB	Slight	Moderate: low strength.	Severe: no water.	Not needed	Slow intake, percs slowly.	Percs slowly.
EuD	Slight	Moderate: low strength.	Severe: no water.	Not needed	Percs slowly, slope.	Slope.
Faceville:						
FaB	Moderate: seepage.	Slight	Severe: no water.	Not needed	Favorable	Favorable.
FaD	Moderate: seepage.	Slight	Severe: no water.	Not needed	Slope	Slope.
FdC2	Moderate: seepage.	Slight	Severe: no water.	Not needed	Slope	Favorable.
Fuquay:						
FsB	Slight	Moderate: piping.	Severe: deep to water.	Not needed	Fast intake	Favorable.
Grady:						
Gr	Moderate: seepage.	Slight	Severe: slow refill.	Floods, wetness, poor outlets.	Wetness, percs slowly, floods.	Not needed.
Lakeland:						
LaB	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed	Droughty, seepage, fast intake.	Not needed.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions
Leefield:						
Le	Moderate: seepage.	Moderate: seepage, piping.	Slight	Favorable	Fast intake	Not needed.
Lucy:						
LmB, LmC	Severe: seepage.	Severe: seepage, piping, erodes easily.	Severe: deep to water.	Not needed	Erodes easily, fast intake, seepage.	Too sandy, erodes easily, slope.
Mascotte:						
Mn	Moderate: seepage.	Moderate: seepage, unstable fill.	Moderate: deep to water.	Wetness, cutbanks cave.	Wetness, fast intake.	Not needed.
Myatt:						
[1]MO:						
Myatt part	Moderate: seepage.	Moderate: low strength.	Severe: deep to water.	Favorable	Wetness, floods.	Not needed.
Osier part	Severe: seepage.	Severe: seepage, unstable fill.	Moderate: deep to water.	Floods, cutbanks cave.	Floods, seepage.	Not needed.
Nankin:						
NkB, NkC	Moderate: seepage.	Slight	Severe: no water.	Not needed	Complex slope, percs slowly.	Favorable.
Norfolk:						
NoA	Moderate: seepage.	Slight	Severe: deep to water.	Not needed	Favorable	Not needed.
NoB	Moderate: seepage.	Slight	Severe: deep to water.	Not needed	Favorable	Favorable.
Ochlockonee:						
Oc	Severe: seepage.	Moderate: seepage, piping, erodes easily.	Severe: deep to water.	Floods	Floods	Not needed.
Ocilla:						
Od	Moderate: seepage.	Moderate: seepage.	Moderate: slow refill.	Favorable	Fast intake	Not needed.
Olustee:						
Oe	Moderate: seepage.	Moderate: seepage, unstable fill.	Moderate: deep to water.	Wetness, cutbanks cave.	Wetness, fast intake.	Not needed.
Orangeburg:						
OrB	Moderate: seepage.	Slight	Severe: deep to water.	Not needed	Favorable	Favorable.
OrD	Moderate: seepage.	Slight	Severe: deep to water.	Not needed	Slope	Slope.
OsC2	Moderate: seepage.	Slight	Severe: deep to water.	Not needed	Slope	Favorable.
Osier:						
[1]OS:						
Osier part	Severe: seepage.	Severe: seepage, unstable fill.	Moderate: deep to water.	Floods, cutbanks cave.	Floods, seepage.	Not needed.
Pelham part	Moderate: seepage.	Moderate: piping.	Slight	Floods, wetness.	Floods, wetness.	Not needed.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions
Ousley:						
Ou	Severe: seepage.	Severe: seepage, piping.	Moderate: deep to water, cutbanks cave.	Floods, cutbanks cave.	Seepage, floods.	Not needed.
Rains:						
Ra	Moderate: seepage.	Slight	Moderate: deep to water.	Wetness, floods.	Wetness, floods.	Not needed.
Stilson:						
Se	Moderate: seepage.	Moderate: seepage.	Moderate: slow refill.	Favorable	Fast intake	Not needed.
Tifton:						
TfA, TfB, [1]TuB	Moderate: seepage.	Slight	Severe: slow refill.	Not needed	Favorable	Favorable.
TsC2	Moderate: seepage.	Slight	Severe: no water.	Not needed	Slope	Favorable.
Wahee:						
[1]WA	Slight	Moderate: compressible.	Moderate: deep to water.	Percs slowly, wetness, floods.	Percs slowly, wetness, floods.	Not needed.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 12.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Alapaha:				
Ap	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.
Bayboro:				
Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Carnegie:				
CaB2	Slight	Slight	Moderate: slope.	Slight.
CaC2	Slight	Slight	Severe: slope.	Slight.
Chipley:				
Ch	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, soil blowing.	Severe: too sandy.
Clarendon:				
Cn	Moderate: wetness.	Slight	Moderate: wetness.	Slight.
Coxville:				
Co	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Dasher:				
Da	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.
Dothan:				
DoA	Slight	Slight	Slight	Slight.
DoB	Slight	Slight	Moderate: slope.	Slight.
Esto:				
EuB	Moderate: percs slowly.	Slight	Moderate: percs slowly, slope.	Slight.
EuD	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Slight.
Faceville:				
FaB	Slight	Slight	Moderate: slope.	Slight.
FaD	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
FdC2	Slight	Slight	Severe: slope.	Slight.
Fuquay:				
FsB	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Grady:				
Gr	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Lakeland:				
LaB	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
Leefield:				
Le	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Lucy:				
LmB, LmC	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.
Mascotte:				
Mn	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Myatt:				
[1]MO:				
Myatt part	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Nankin:				
NkB	Slight	Slight	Moderate: slope.	Slight.
NkC	Slight	Slight	Severe: slope.	Slight.
Norfolk:				
NoA	Slight	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
NoB	Slight	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
Ochlockonee:				
Oc	Severe: floods.	Moderate: floods.	Severe: floods.	Severe: floods.
Ocilla:				
Od	Moderate: wetness, too sandy.	Moderate: wetness.	Moderate: wetness, too sandy.	Moderate: wetness.
Olustee:				
Oe	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Orangeburg:				
OrB	Slight	Slight	Moderate: slope.	Slight.
OrD	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
OsC2	Slight	Slight	Severe: slope.	Slight.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Osier:				
[1]OS:				
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Pelham part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness.
Ousley:				
Ou	Severe: floods, too sandy.	Severe: too sandy.	Severe: floods, too sandy.	Severe: too sandy.
Rains:				
Ra	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Stilson:				
Se	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: too sandy.
Tifton:				
TfA	Slight	Slight	Slight	Slight.
TfB, [1]TuB	Slight	Slight	Moderate: slope.	Slight.
TsC2	Slight	Slight	Severe: slope.	Slight.
Wahee:				
[1]WA	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 13.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Alapaha:												
Ap	Very poor.	Poor	Fair	Fair	Fair	---	Fair	Fair	Poor	Fair	Fair	---
Bayboro:												
Bm	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
Carnegie:												
CaB2	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
CaC2	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Chipley:												
Ch	Poor	Fair	Fair	Fair	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Clarendon:												
Cn	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
Coxville:												
Co	Poor	Fair	Fair	Fair	Fair	---	Good	Fair	Fair	Fair	Fair	---
Dasher:												
Da	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
Dothan:												
DoA, DoB	Good	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Esto:												
EuB	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
EuD	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Faceville:												
FaB	Good	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
FaD, FdC2	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Fuquay:												
FsB	Fair	Fair	Good	Fair	Fair	---	Poor	Very poor.	Good	Fair	Very poor.	---
Grady:												
Gr	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
Lakeland:												
LaB	Poor	Fair	Fair	Poor	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Leefield:												
Le	Fair	Fair	Good	Fair	Fair	---	Fair	Fair	Fair	Fair	Fair	---
Lucy:												
LmB, LmC	Poor	Fair	Good	Good	Good	---	Poor	Very poor.	Fair	Good	Very poor.	---
Mascotte:												
Mn	Poor	Fair	Fair	Poor	Fair	---	Poor	Fair	Fair	Fair	Poor	---

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Myatt:												
[1]MO:												
Myatt part	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
Osier part	Very poor.	Poor	Fair	Fair	Fair	---	Fair	Good	Poor	Fair	Fair	---
Nankin:												
NkB	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
NkC	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Norfolk:												
NoA, NoB	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
Ochlockonee:												
Oc	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
Ocilla:												
Od	Poor	Fair	Fair	Fair	Good	---	Fair	Fair	Fair	Good	Fair	---
Olustee:												
Oe	Poor	Fair	Fair	Poor	Fair	---	Poor	Fair	Fair	Fair	Poor	---
Orangeburg:												
OrB	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.	---
OrD, OsC2	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Osier:												
[1]OS:												
Osier part	Very poor.	Poor	Fair	Fair	Fair	---	Fair	Good	Poor	Fair	Fair	---
Pelham part	Poor	Poor	Fair	Fair	Fair	---	Fair	Fair	Poor	Fair	Fair	---
Ousley:												
Ou	Poor	Fair	Good	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.	---
Rains:												
Ra	Very poor.	Very poor.	Very poor.	Fair	Fair	---	Good	Good	Very poor.	Poor	Good	---
Stilson:												
Se	Fair	Fair	Good	Fair	Fair	---	Poor	Poor	Fair	Fair	Poor	---
Tifton:												
TfA	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
TfB, [1]TuB	Good	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
TsC2	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Wahee:												
[1]WA	Poor	Poor	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair	---

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Alapaha:											
Ap	0-32	Loamy sand	SM	A-2	0	100	99-100	70-95	15-31	---	NP
	32-44	Sandy loam, sandy clay loam.	SC, SM-SC	A-2, A-4	0	99-100	98-100	70-95	30-45	19-30	5-10
	44-65	Sandy clay loam	SC	A-2, A-4, A-6	0	93-100	88-100	66-90	29-40	22-30	7-22
Bayboro:											
Bm	0-15	Loam	CL, ML	A-6, A-7	0	100	100	85-100	60-80	30-42	11-22
	15-62	Clay loam, sandy clay, clay.	CL, CH	A-7	0	100	100	85-100	55-90	41-70	20-40
Carnegie:											
CaB2, CaC2	0-7	Sandy loam	SM, SM-SC	A-2	0	65-85	60-80	51-75	13-30	<25	NP-5
	7-21	Sandy clay loam	SC	A-6, A-2, A-4	0	80-100	60-95	55-80	29-50	25-35	8-15
	21-35	Sandy clay loam	SC	A-6	0	90-100	80-95	75-95	36-50	25-40	11-20
	35-65	Sandy clay loam, sandy clay.	CL, SC	A-7, A-6	0	95-100	90-100	75-100	40-65	30-50	11-25
Chipley:											
Ch	0-8	Sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	8-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
Clarendon:											
Cn	0-13	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	65-90	10-30	<20	NP-3
	13-32	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	95-100	75-95	36-55	20-40	5-15
	32-62	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	98-100	80-95	30-55	20-40	5-15
Coxville:											
Co	0-14	Fine sandy loam	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	1-15
	14-62	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	90-98	53-80	30-55	15-35
Dasher:											
Da	0-8	Muck	Pt	---	0	---	---	---	---	---	NP
	8-65	Mucky-peat	Pt	---	0	---	---	---	---	---	NP
Dothan:											
DoA, DoB	0-9	Loamy sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	9-42	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
	42-62	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A7	0	95-100	92-100	70-95	30-50	25-45	4-18
Esto:											
EuB, EuD	0-7	Sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	95-100	95-100	70-96	40-55	<20	NP-4
	7-12	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	90-100	45-90	35-50	12-25
	12-62	Clay loam, clay, sandy clay.	CL, CH, MH	A-6, A-7	0	95-100	95-100	90-100	51-90	35-55	18-30

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Faceville:											
FaB, FaD	0-8	Loamy sand	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-6
	8-11	Sandy clay loam, sandy clay.	SC, ML, CL	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	11-68	Sandy clay, clay, clay loam.	CL, ML, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
FdC2	0-5	Sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-6
	5-11	Sandy clay loam, sandy clay.	SC, ML, CL	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	11-68	Sandy clay, clay, clay loam.	CL, ML, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
Fuquay:											
FsB	0-28	Loamy sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	28-50	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	85-100	85-100	60-80	23-45	<25	NP-13
	50-65	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	15-49	8-23
Grady:											
Gr	0-5	Sandy loam	SM, ML, CL-ML, SM-SC	A-4, A-6	0	100	99-100	85-100	40-75	<30	NP-15
	5-65	Clay, sandy clay	CL, ML, CH	A-6, A-7	0	100	100	90-100	55-90	30-50	12-25
Lakeland:											
LaB	0-42	Sand	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	42-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
Leefield:											
Le	0-28	Loamy sand	SM, SW-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	28-32	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	32-65	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-85	20-40	<40	NP-20
Lucy:											
LmB, LmC	0-32	Loamy sand	SM, SP-SM	A-2	0	100	95-100	50-80	10-30	---	NP
	32-40	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	55-85	15-50	<30	NP-15
	40-65	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	5-20
Mascotte:											
Mn	0-14	Sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	14-23	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	23-35	Fine sand, sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	35-65	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	100	85-100	25-45	20-38	4-15

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Myatt:											
[1]MO:											
Myatt part-------	0-12	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	95-100	95-100	70-100	30-90	<25	NP-5
	12-55	Loam, sandy clay loam, clay loam.	SM, SC, ML, CL	A-6	0	95-100	95-100	80-100	40-80	<30	NP-10
	55-65	Loamy sand	SM, SP-SM	A-2	0	100	95-100	50-80	10-30	---	NP
Osier part-------	0-4	Loamy fine sand	SM	A-2	0	100	98-100	70-90	13-25	---	NP
	4-43	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	65-90	5-20	---	NP
	43-65	Coarse sand, sand, fine sand.	SP, SP-SM	A-1, A-3	0	100	90-100	40-60	2-10	---	NP
Nankin:											
NkB, NkC-----------	0-8	Sandy loam-------	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	8-13	Sandy clay loam, sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	75-90	25-45	20-35	4-15
	13-38	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	38-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
Norfolk:											
NoA, NoB-----------	0-12	Loamy sand-------	SM, SM-SC, SC	A-2	0	95-100	95-100	50-91	15-33	<25	NP-14
	12-65	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-40	4-20
Ochlockonee:											
Oc-----------------	0-6	Loamy sand-------	SM, ML, SM-SC	A-4	0	100	95-100	95-100	36-80	<26	NP-5
	6-65	Loamy sand, sandy loam, silt loam, sandy clay loam	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9
Ocilla:											
Od-----------------	0-28	Loamy sand-------	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
	28-65	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
Olustee:											
Oe-----------------	0-6	Sand-------------	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	6-19	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	8-15	---	NP
	19-35	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	35-60	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6	0	100	100	85-100	30-45	25-38	8-15

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Orangeburg:											
OrB, OrD----------	0-13	Loamy sand------	SM	A-2	0	98-100	95-100	60-75	14-27	---	NP
	13-18	Sandy loam------	SM, SC, SM-SC	A-2	0	98-100	95-100	70-84	25-35	<30	NP-4
	18-65	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
OsC2--------------	0-5	Sandy loam------	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	5-18	Sandy loam------	SM, SC, SM-SC	A-2	0	98-100	95-100	70-84	25-35	<30	NP-4
	18-65	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
Osier:											
[1]OS:											
Osier part------	0-4	Loamy fine sand	SM	A-2	0	100	98-100	70-90	13-25	---	NP
	4-43	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	65-90	5-20	---	NP
	43-65	Coarse sand, sand, fine sand.	SP, SP-SM	A-1, A-3	0	100	90-100	40-60	2-10	---	NP
Pelham part-----	0-28	Loamy sand------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	28-64	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	25-50	15-30	2-12
Ousley:											
Ou----------------	0-14	Fine sand-------	SP-SM, SM	A-2, A-3	0	100	100	70-100	5-25	---	NP
	14-80	Sand, fine sand, coarse sand.	SP-SM, SM, SP	A-1, A-2, A-3	0	100	95-100	36-99	2-15	---	NP
Rains:											
Ra----------------	0-16	Loamy sand------	SM	A-2	0	100	95-100	60-98	15-35	<30	NP-5
	16-65	Sandy clay loam, clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	98-100	65-98	30-70	18-40	4-18
Stilson:											
Se----------------	0-36	Loamy sand------	SM	A-2	---	94-100	94-100	74-92	15-24	---	NP
	36-46	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-6, A-4	---	89-100	86-100	77-94	28-41	<29	NP-13
	46-62	Sandy loam, sandy clay loam.	SM, SC	A-2, A-6	---	96-100	95-100	70-99	30-50	<40	NP-20
Tifton:											
TfA, TfB, [1]TuB----	0-11	Loamy sand------	SM, SP-SM, SM-SC	A-2	0	70-95	62-89	53-85	11-27	<25	NP-5
	11-14	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-6
	14-42	Sandy clay loam	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	70-95	65-89	60-81	33-53	22-40	5-20
	42-65	Sandy clay loam	SC, CL	A-2, A-6, A-7	0	87-100	80-99	70-94	34-55	24-45	11-21

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Tifton:											
TsC2	0-4	Sandy loam	SM, SP-SM, SM-SC	A-2	0	70-95	62-89	53-85	11-27	<25	NP-5
	4-14	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-6
	14-42	Sandy clay loam	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	70-95	65-89	60-81	33-53	22-40	5-20
	42-65	Sandy clay loam	SC, CL	A-2, A-6, A-7	0	87-100	80-99	70-94	34-55	24-45	11-21
Wahee:											
[1]WA	0-10	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	50-85	30-50	<30	NP-7
	10-52	Clay, clay loam, silty clay.	CL, CH	A-7	0	100	100	95-100	70-90	41-60	18-32
	52-65	Sandy clay loam, clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	36-65	30-50	11-25

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Alapaha:									
Ap	0-32	6.0-20	0.05-0.08	4.5-5.5	Low	High	High	---	---
	32-44	0.6-2.0	0.10-0.13	4.5-5.5	Low	High	High	---	
	44-65	0.2-0.6	0.08-0.10	4.5-5.5	Low	High	High	---	
Bayboro:									
Bm	0-15	0.6-2.0	0.15-0.20	4.5-5.5	Low	High	High	---	---
	15-62	0.06-0.2	0.14-0.18	4.5-5.5	Moderate	High	High	---	
Carnegie:									
CaB2, CaC2	0-7	2.0-6.0	0.05-0.08	4.5-6.0	Low	Low	Moderate	0.28	3
	7-21	0.6-2.0	0.10-0.14	4.5-5.5	Low	Low	Moderate	0.24	
	21-35	0.2-0.6	0.10-0.13	4.5-5.5	Low	Low	Moderate	0.20	
	35-65	0.2-0.6	0.10-0.14	4.5-5.5	Low	Low	Moderate	0.24	
Chipley:									
Ch	0-8	6.0-20	0.05-0.10	4.5-6.0	Very low	Low	High	0.15	5
	8-80	6.0-20	0.03-0.08	4.5-6.0	Very low	Low	High	---	
Clarendon:									
Cn	0-13	2.0-6.0	0.08-0.12	4.5-6.5	Low	Moderate	High	0.15	5
	13-32	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	0.20	
	32-62	0.2-0.6	0.08-0.12	4.5-5.5	Low	Moderate	High	0.15	
Coxville:									
Co	0-14	0.6-2.0	0.12-0.17	4.5-6.0	Low	High	High	---	---
	14-62	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	High	High	---	
Dasher:									
Da	0-8	---	---	---	---	---	---	---	---
	8-65	---	---	---	---	---	---	---	
Dothan:									
DoA, DoB	0-9	2.0-6.0	0.06-0.10	4.5-5.5	Very low	Moderate	Moderate	0.24	4
	9-42	0.6-2.0	0.10-0.14	4.5-5.5	Low	Moderate	Moderate	0.20	
	42-62	0.2-0.6	0.08-0.12	4.5-5.5	Low	Moderate	Moderate	0.10	
Esto:									
EuB, EuD	0-7	2.0-6.0	0.11-0.15	4.5-5.5	Low	Low	High	0.17	3
	7-12	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	High	High	0.28	
	12-62	0.06-0.2	0.12-0.18	4.5-5.5	Moderate	High	High	0.32	
Faceville:									
FaB, FaD, FdC2	0-8	6.0-20	0.06-0.09	4.5-5.5	Low	Low	Moderate	0.28	5
	8-11	0.6-2.0	0.12-0.15	4.5-5.5	Low	Low	Moderate	---	
	11-68	0.6-2.0	0.12-0.18	4.5-5.5	Low	Low	Moderate	---	
Fuquay:									
FsB	0-28	>6.0	0.04-0.09	4.5-5.5	Low	Low	High	0.20	5
	28-50	0.6-2.0	0.12-0.15	4.5-5.5	Low	Low	High	0.20	
	50-65	0.06-0.2	0.10-0.13	4.5-5.5	Low	Low	High	0.20	
	96-99	>6.0	0.04-0.09	4.5-5.5	Low	Low	High	0.20	
Grady:									
Gr	0-5	0.6-2.0	0.10-0.18	3.6-5.5	Low	High	High	---	---
	5-65	0.06-0.2	0.12-0.16	3.6-5.5	Moderate	High	High	---	
Lakeland:									
LaB	0-42	>20	0.05-0.08	4.5-6.0	Very low	Low	Moderate	0.17	5
	42-80	>20	0.03-0.08	4.5-6.0	Very low	Low	Moderate	---	
Leefield:									
Le	0-28	6.0-20	0.04-0.07	4.5-6.0	Low	Low	Low	---	---
	28-32	0.6-2.0	0.10-0.13	4.5-5.5	Low	Moderate	High	---	
	32-65	0.2-0.6	0.08-0.12	4.5-5.5	Low	Moderate	High	---	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Lucy:									
LmB, LmC	0-32	>6.0	0.06-0.10	5.1-5.5	Low	Low	High	0.20	5
	32-40	2.0-6.0	0.10-0.12	4.5-5.5	Low	Low	High	---	
	40-65	0.6-2.0	0.12-0.14	4.5-5.5	Low	Low	High	---	
Mascotte:									
Mn	0-14	6.0-20	0.03-0.08	4.5-5.5	Very low	High	High	---	---
	14-23	0.6-2.0	0.10-0.15	4.5-5.5	Very low	High	High	---	
	23-35	6.0-20	0.03-0.08	4.5-5.5	Very low	High	High	---	
	35-65	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	
Myatt:									
[1]MO:									
Myatt part	0-12	0.6-2.0	0.11-0.24	4.5-5.5	Low	High	High	---	---
	12-55	0.2-2.0	0.12-0.20	3.6-5.5	Low	High	High	---	
	55-65	>6.0	0.06-0.10	3.6-5.0	Very low	High	High	---	
Osier part	0-4	6.0-20	0.10-0.15	4.5-6.0	Low	High	High	---	---
	4-43	6.0-20	0.03-0.10	4.5-6.0	Low	High	High	---	
	43-65	>20	0.02-0.05	4.5-6.0	Low	High	High	---	
Nankin:									
NkB, NkC	0-8	2.0-6.0	0.05-0.08	4.5-5.5	Low	Low	High	0.28	3
	8-13	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	0.24	
	13-38	0.2-0.6	0.11-0.16	4.5-5.5	Low	High	High	0.24	
	38-65	0.2-0.6	0.10-0.15	4.5-5.5	Low	High	High	0.24	
Norfolk:									
NoA, NoB	0-12	2.0-6.0	0.06-0.10	4.5-6.0	Low	Moderate	High	0.17	5
	12-65	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	0.24	
Ochlockonee:									
Oc	0-6	2.0-6.0	0.07-0.14	4.5-5.5	Low	Low	High	---	---
	6-65	2.0-6.0	0.06-0.12	4.5-5.5	Low	Low	High	---	
Ocilla:									
Od	0-28	2.0-20	0.05-0.08	4.5-5.5	Low	High	Moderate	---	---
	28-65	0.6-2.0	0.09-0.12	4.5-5.5	Low	High	Moderate	---	
Olustee:									
Oe	0-6	6.0-20	0.05-0.10	4.5-5.5	Very low	High	High	---	---
	6-19	0.6-2.0	0.10-0.15	4.5-5.5	Very low	High	High	---	
	19-35	6.0-20	0.03-0.08	4.5-5.5	Very low	High	High	---	
	35-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	
Orangeburg:									
OrB, OrD	0-13	2.0-6.0	0.06-0.08	4.5-6.0	Low	Moderate	Moderate	0.20	5
	13-18	2.0-6.0	0.07-0.10	4.5-5.5	Low	Moderate	Moderate	0.24	
	18-65	0.6-2.0	0.10-0.13	4.5-5.5	Low	Moderate	Moderate	0.24	
OsC2	0-5	2.0-6.0	0.07-0.10	4.5-6.0	Low	Moderate	Moderate	0.24	5
	5-18	2.0-6.0	0.07-0.10	4.5-5.5	Low	Moderate	Moderate	0.24	
	18-65	0.6-2.0	0.10-0.13	4.5-5.5	Low	Moderate	Moderate	0.24	
Osier:									
[1]OS:									
Osier part	0-4	6.0-20	0.10-0.15	4.5-6.0	Low	High	High	---	---
	4-43	6.0-20	0.03-0.10	4.5-6.0	Low	High	High	---	
	43-65	>20	0.02-0.05	4.5-6.0	Low	High	High	---	
Pelham part	0-28	6.0-20	0.05-0.08	4.5-5.5	Very low	High	High	---	---
	28-64	0.6-2.0	0.10-0.13	4.5-5.5	Low	High	High	---	
Ousley:									
Ou	0-14	6.0-20	0.05-0.10	4.5-5.5	Low	Low	High	0.15	5
	14-80	6.0-20	0.02-0.06	4.5-5.5	Low	Low	High	0.15	
Rains:									
Ra	0-16	6.0-20	0.07-0.10	4.5-6.5	Low	High	High	---	---
	16-65	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Stilson:									
Se	0-36	6.0-20	0.06-0.09	4.5-5.5	Low	Low	High	0.17	5
	36-46	0.6-2.0	0.09-0.12	4.5-5.5	Low	Moderate	High	0.24	
	46-62	0.6-2.0	0.08-0.10	4.5-5.5	Low	Moderate	High	0.17	
Tifton:									
TfA, TfB, TsC2, [1]TuB	0-11	6.0-20	0.03-0.08	4.5-5.5	Low	Low	Moderate	0.24	4
	11-14	6.0-20	0.08-0.12	4.5-5.5	Low	Low	Moderate	---	
	14-42	0.6-2.0	0.12-0.15	4.5-5.5	Low	Low	Moderate	---	
	42-65	0.6-2.0	0.10-0.13	4.5-5.5	Low	Low	Moderate	---	
Wahee:									
[1]WA	0-10	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	---	---
	10-52	0.06-0.2	0.12-0.20	4.5-5.5	Moderate	High	High	---	
	52-65	0.2-0.6	0.12-0.20	4.5-5.5	Moderate	High	High	---	

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Cemented pan	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness
					Ft			In		In	
Alapaha:											
Ap	D	Occasional	Brief	Jan-Apr	1.0-2.0	Apparent	Dec-May	>60	---	---	---
Bayboro:											
Bm	D	Common	Brief	Dec-Mar	0-0.5	Apparent	Dec-Apr	>60	---	---	---
Carnegie:											
CaB2, CaC2	C	None	---	---	>6.0	---	---	>60	---	---	---
Chipley:											
Ch	C	None	---	---	2.0-3.0	Apparent	Jun-Sep	>60	---	---	---
Clarendon:											
Cn	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---
Coxville:											
Co	D	None to rare	---	---	0-2.5	Apparent	Nov-Apr	>60	---	---	---
Dasher:											
Da	D	Frequent	Very long	Nov-Aug	+3-0.5	Apparent	Nov-Aug	>60	---	---	---
Dothan:											
DoA, DoB	B	None	---	---	3.5-4.0	Perched	Jan-Apr	>60	---	---	---
Esto:											
EuB, EuD	B	None	---	---	>6.0	---	---	>60	---	---	---
Faceville:											
FaB, FaD, FdC2	B	None	---	---	>6.0	---	---	>60	---	---	---
Fuquay:											
FsB	B	None	---	---	2.5-4.0	Perched	Jan-Mar	>60	---	---	---
Grady:											
Gr	D	Frequent	Very long	Dec-Jun	+2-1.0	Apparent	Dec-Jun	>60	---	---	---
Lakeland:											
LaB	A	None	---	---	>6.0	---	---	>72	---	---	---
Leefield:											
Le	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---
Lucy:											
LmB, LmC	A	None	---	---	>6.0	---	---	>60	---	---	---
Mascotte:											
Mn	B/D	None	---	---	0-1.0	Apparent	Jun-Sep	>60	---	---	---
Myatt:											
[1]MO:											
Myatt part	D	Common	Brief	Nov-Mar	0-1.0	Apparent	Nov-Apr	>60	---	---	---
Osier part	D	Common	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	>60	---	---	---
Nankin:											
NkB, NkC	C	None	---	---	>6.0	---	---	>60	---	---	---
Norfolk:											
NoA, NoB	B	None	---	---	>6.0	---	---	>60	---	---	---
Ochlockonee:											
Oc	B	Common	Very brief	Dec-Apr	3.0-4.0	Apparent	Dec-Apr	>60	---	---	---
Ocilla:											
Od	C	None to common.	Brief	Dec-Apr	1.0-2.5	Apparent	Dec-Apr	>60	---	---	---

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Cemented pan	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Depth	Hard-ness
					Ft			In		In	
Olustee:											
Oe	B/D	None	---	---	0-1.0	Apparent	Jun-Sep	>60	---	---	---
Orangeburg:											
OrB, OrD, OsC2	B	None	---	---	>6.0	---	---	>60	---	---	---
Osier:											
[1]OS:											
Osier part	D	Common	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	>60	---	---	---
Pelham part	B/D	Common	Brief	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	>60	---	---	---
Ousley:											
Ou	C	Common	Brief	Dec-Apr	1.5-3.0	Apparent	Dec-May	>60	---	---	---
Rains:											
Ra	B/D	Rare to common.	Brief	Dec-Mar	0-1.0	Apparent	Nov-Apr	>60	---	---	---
Stilson:											
Se	B	None	---	---	2.5-3.0	Perched	Dec-Apr	>60	---	---	---
Tifton:											
TfA, TfB, TsC2, [1]TuB	B	None	---	---	>6.0	---	---	>60	---	---	---
Wahee:											
[1]WA	D	Common	Brief	Dec-Mar	0-1.0	Apparent	Dec-Mar	>60	---	---	---

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior characteristics of the map unit.

TABLE 17.—ENGINEERING TEST DATA

[Tests were performed by the Georgia Department of Transportation. The tests, except those for volume change, were performed in accordance with standard test procedures of the American Association of State Highway and Transportation Officials (AASHTO). Densities and volume changes were not corrected for total sample. NP means nonplastic. All soils formed in marine sediments]

Soil name and location	Report No.	Depth	Moisture density[1]: Maximum dry density	Moisture density[1]: Optimum moisture	Volume change[2]: Shrinkage	Volume change[2]: Swell	Volume change[2]: Total	Mechanical analysis[3] — Percentage passing sieve: No. 4	No. 10	No. 40	No. 200	Percentage smaller than—: 0.05 mm	0.02 mm	0.005 mm	0.002 mm	Liquid limit	Plasticity index	Classification: AASHTO[4]	Classification: Unified[5]
		In	Lbs/ft3	Pct	Pct	Pct	Pct												
Clarendon loamy sand (Brooks County):	S63-Ga-																		
200 yards southwest of west boundary of Brooks County Airstrip.	14-3-1	0-10	108	14	0.7	8.0	8.7	100	99	94	26	21	15	8	6	—	NP	A-2-4(0)	SM
	14-3-3	14-32	116	12	5.7	1.9	7.6	100	99	94	40	33	28	24	22	24	11	A-6(2)	SC
	14-3-5	40-50	120	11	0.7	0.4	1.1	98	96	91	38	33	27	22	21	25	10	A-4(0)	SC
Dothan loamy sand (Brooks County):	S73-Ga-																		
0.5 mile northwest of Brooks County High School along Barwick road and 100 feet north of road, in a cultivated area.	14-1-2	9-18	122	11	1.4	1.5	2.9	99	99	92	35	33	31	26	24	—	NP	A-2-4(0)	SM
	14-1-3	18-42	117	14	0.3	1.0	1.3	94	93	87	41	37	36	33	30	23	7	A-4(0)	SC-SM
Faceville loamy sand (Brooks County):	S63-Ga-																		
0.3 mile west of Hickory Head Store and 0.4 mile south of county road, east side of plantation road.	14-9-1	0-9	118	12	0.3	3.5	3.8	100	99	89	21	20	15	10	6	—	NP	A-2-4(0)	SM
	14-9-3	17-38	107	17	3.6	1.6	5.2	—	100	94	50	48	46	44	43	35	23	A-6(8)	CL
	14-9-4	38-60	107	18	11.0	1.1	12.1	—	100	94	51	50	50	48	48	37	20	A-6(7)	CL
Faceville loamy sand (Thomas County):	S65-Ga-																		
6 miles south of Thomasville City Limits along U.S. Highway 1, and 2.2 miles west on county road, south side of road.	136-3-1	0-6	111	10	0.2	0.1	0.3	—	100	97	17	15	10	8	7	—	NP	A-2-4(0)	SM
	136-3-3	8-38	110	16	7.7	3.3	11.0	99	99	97	46	43	41	39	37	29	13	A-6(3)	SC
	136-3-4	38-60	102	18	6.3	2.2	8.5	—	100	99	54	50	49	47	46	38	17	A-6(7)	CL
Norfolk loamy sand (Brooks County):	S-63-Ga-																		
1 mile northwest of Brooks County Airstrip, west side of Quitman-Barwick road.	14-4-1	0-7	115	10	0.0	4.1	4.1	100	99	91	19	18	13	8	6	—	NP	A-2-4(0)	SM
	14-4-3	11-35	108	16	7.8	0.9	8.7	97	96	90	45	43	41	38	36	33	NP	A-4(2)	SM
	14-4-5	45-55	105	21	7.3	1.6	8.9	—	100	95	55	53	50	46	45	34	11	A-6(4)	ML-CL

See footnotes at end of table.

TABLE 17.--ENGINEERING TEST DATA--Continued

Soil name and location	Report No.	Depth	Moisture density[1]		Volume change[2]			Mechanical analysis[3]								Liquid limit	Plasticity index	Classification	
								Percentage passing sieve				Percentage smaller than--							
			Maximum dry density	Optimum moisture	Shrinkage	Swell	Total	No. 4	No. 10	No. 40	No. 200	0.05 mm	0.02 mm	0.005 mm	0.002 mm			AASHTO[4]	Unified[5]
		In	Lbs/ft3	Pct	Pct	Pct	Pct									Pct			
Norfolk loamy sand (Brooks County):	S63-Ga-																		
2 miles west of Hickory Head Church.	14-6-1	0-7	105	15	2.7	5.1	7.8	100	99	91	28	25	20	12	10	---	NP	A-2-4(0)	SM
	14-6-3	12-33	123	10	0.9	2.9	3.8	98	97	91	29	27	24	21	20	20	11	A-2-6(0)	SC
	14-6-5	37-50	105	18	7.4	3.8	11.2	98	96	92	46	46	44	41	39	35	20	A-6(6)	SC
Orangeburg loamy sand (Thomas County):	S73-Ga-																		
3 miles north of the Georgia-Florida line along U.S. Highway 19, and 400 feet east of road, in wooded area.	136-1-3	13-18	120	11	6.2	2.0	8.2	100	100	96	29	25	23	20	17	---	NP	A-2-4(0)	SM
	136-1-5	18-55	116	14	5.8	9.2	15.0	100	100	96	40	37	35	32	30	24	7	A-4(0)	SC-SM
	136-1-5	55-65	108	18	4.6	5.8	10.4	100	100	97	47	44	43	40	38	30	8	A-4(1)	SC

[1]Based on "Moisture-density Relations of Soils Using 5.5-lb. Rammer and 12-in Drop," AASHTO Designaton T 99, Method A (2).

[2]Based on "A System of Soil Classification" by W. F. Abercombrie (1).

[3]Mechanical analyses according to the AASHTO Designation T 88 (2). Results by this procedure frequently may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-sized fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-sized fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soil.

[4]Based on "Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt 1, Ed 8): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes," AASHTO Designation M 145-49.

[5]Based on the Unified Soil Classification System (3).

TABLE 18.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Alapaha	Loamy, siliceous, thermic Arenic Plinthic Paleaquults
Bayboro	Clayey, mixed, thermic Umbric Paleaquults
Carnegie	Fine-loamy, siliceous, thermic Fragic Paleudults
Chipley	Thermic, coated Aquic Quartzipsamments
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Dasher	Dysic, thermic Typic Medihemists
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Esto	Clayey, kaolinitic, thermic Typic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Grady	Clayey, kaolinitic, thermic Typic Paleaquults
Lakeland	Thermic, coated Typic Quartzipsamments
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Mascotte	Sandy over loamy, siliceous, thermic Ultic Haplaquods
*Myatt	Fine-loamy, siliceous, thermic Typic Ochraquults
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
Olustee	Sandy over loamy, siliceous, thermic Ultic Haplaquods
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Osier	Siliceous, thermic Typic Psammaquents
Ousley	Thermic, uncoated Aquic Quartzipsamments
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Stilson	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
Wahee	Clayey, mixed, thermic Aeric Ochraquults

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