United States
Department of
Agriculture

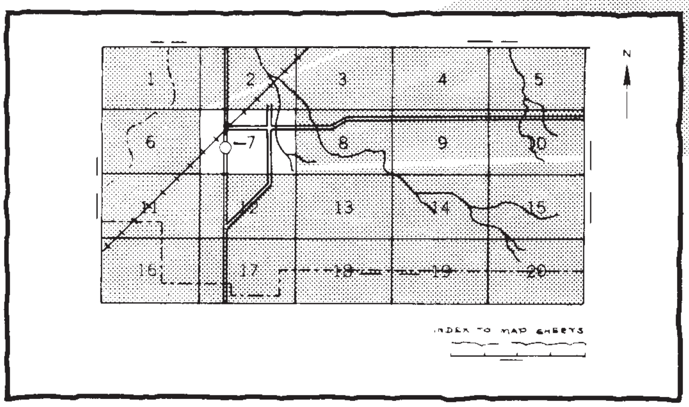
Soil
Conservation
Service

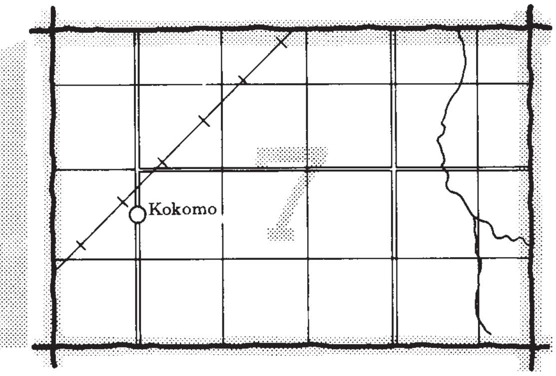
In cooperation with
University of Florida
Institute of Food and
Agricultural Sciences,
Agricultural Experiment
Stations and
Soil Science Department,
and Florida Department of
Agriculture and
Consumer Services

Soil Survey of Jefferson County, Florida

HOW TO USE

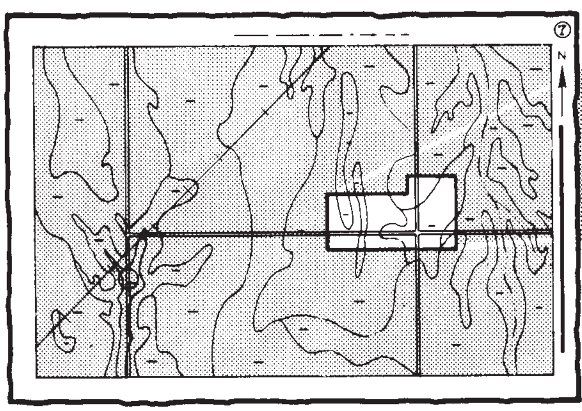
1. Locate your area of interest on the ''Index to Map Sheets.''

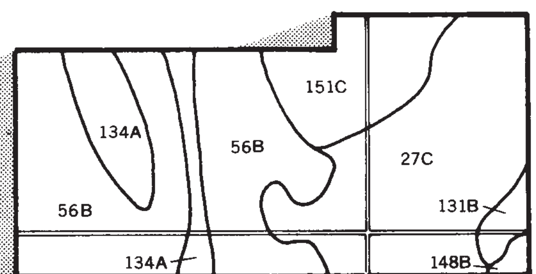




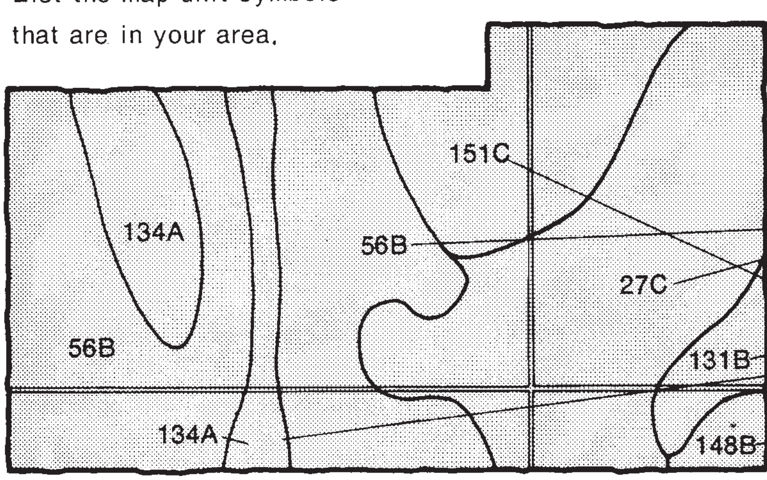
2. Note the number of the map sheet and turn to that sheet.

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





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

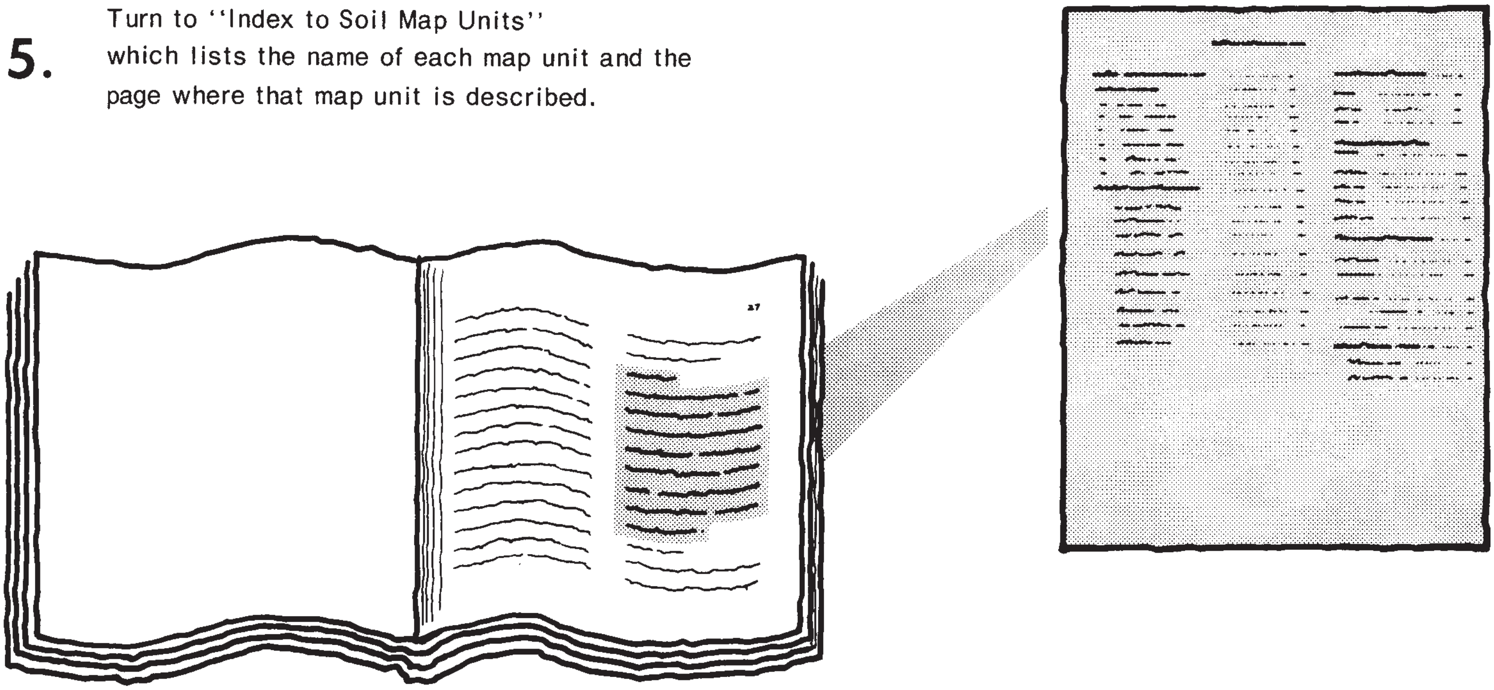


Symbols

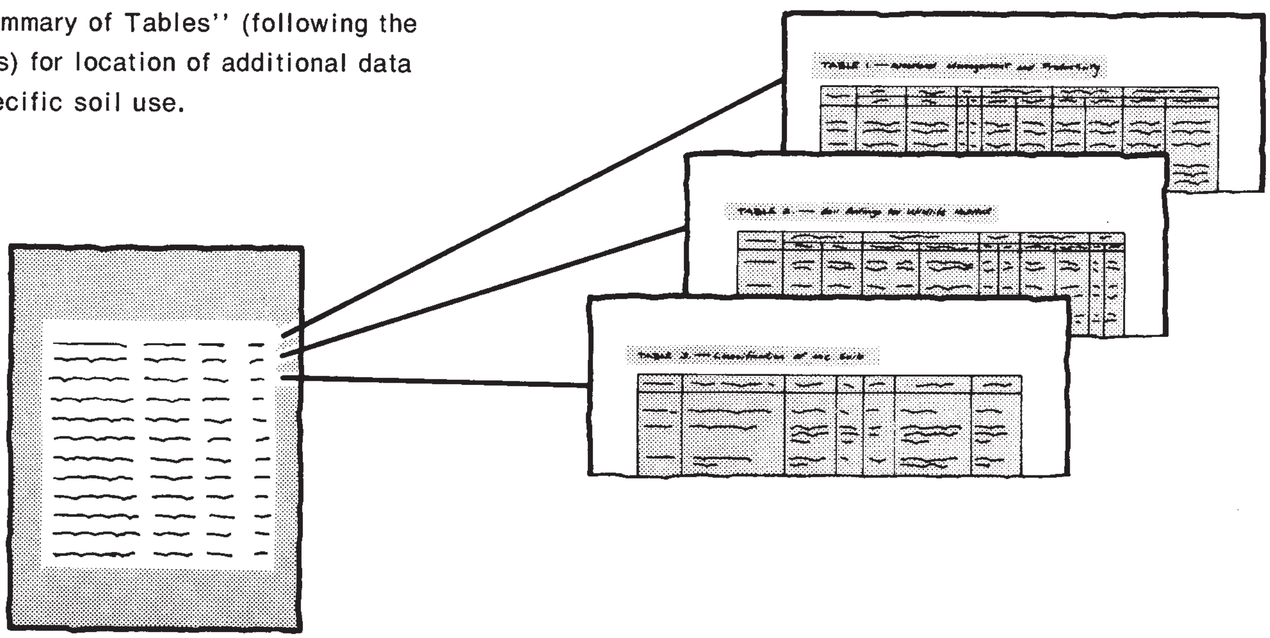
27C
56B
131B
134A
148B
151C

THIS SOIL SURVEY

5. Turn to ''Index to Soil Map Units'' which lists the name of each map unit and the page where that map 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; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The 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, handicap, or age.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1984. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This soil survey was made cooperatively by the Soil Conservation Service and the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations and Soil Science Department, and Florida Department of Agriculture and Consumer Services. It is part of the technical assistance furnished to the Jefferson County Soil and Water Conservation District.

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

Cover: The Jefferson County Courthouse is in an area of Dothan loamy fine sand, 2 to 5 percent slopes. This soil is well suited to most urban uses.

Contents

Soil Series

Issued February 1989

Index to Map Units

Summary of Tables

Foreword

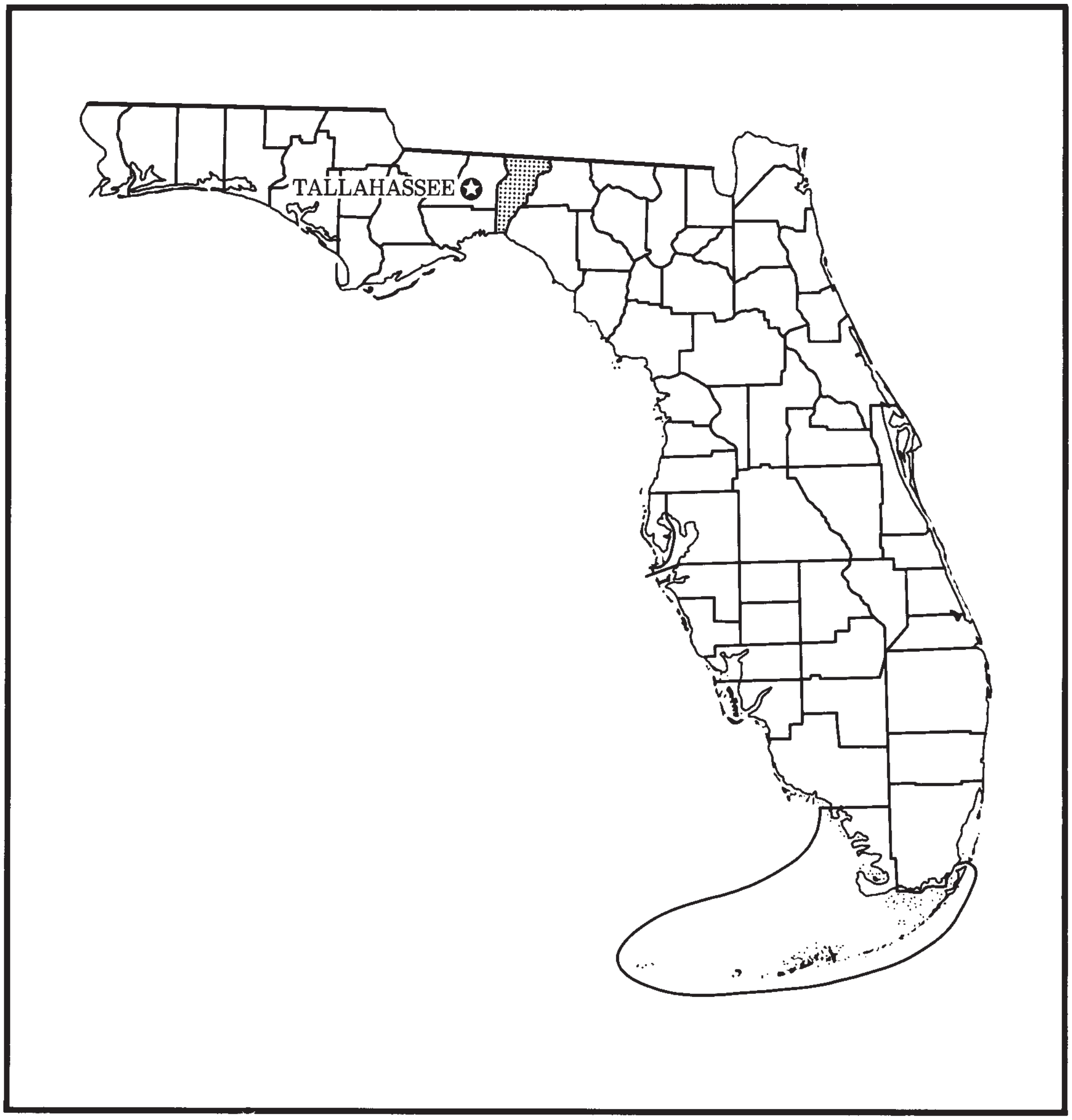
This soil survey contains information that can be used in land-planning programs in Jefferson County, Florida. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

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

James W. Mitchell
State Conservationist
Soil Conservation Service



Location of Jefferson County in Florida.

Soil Survey of Jefferson County, Florida

By William Jeffrey Allen, Soil Conservation Service

Fieldwork by William T. Crews, David Eminhizer, David M. Kriz, Therman E. Sanders, Leland D. Sasser, Robert L. Weatherspoon, and Christopher Andrew Williams, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
In cooperation with
University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations, and Soil Science Department, and
Florida Department of Agriculture and Consumer Services

JEFFERSON COUNTY is in the northern part of the Florida Peninsula. It is bordered to the north by Thomas and Brooks Counties in Georgia; on the west by Leon and Wakulla Counties; on the east by Taylor and Madison Counties; and to the south by the Gulf of Mexico. The county covers about 392,365 acres, or 611 square miles. It is about 39 miles from north to south on the western quarter, about 24 miles wide at the widest point, and about 5 miles wide in the southern quarter. Agriculture is the largest industry in the county.

General Nature of the County

In this section, environmental and cultural factors that affect the use and management of soils in Jefferson County are described. These factors are climate, history, natural resources, ground water, farming, and transportation.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at the Agricultural Research Center, Monticello, Florida, in the period 1937 to 1978. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring.

In winter the average temperature is 55 degrees F, and the average daily minimum temperature is 43 degrees. Jefferson County has a moderate climate. Summers are long, warm, and humid. Winters are mild to cool. The Gulf of Mexico moderates maximum and minimum temperatures.

Annual rainfall in the county averages about 55 inches. Rainfall is heaviest from June to September; about 44 percent of the annual rainfall occurs during this period. Moderately intense rains of long duration occur in the spring. October and November are the driest months. The remainder of the rainfall is evenly distributed throughout the rest of the year.

Most summer rainfall comes from afternoon or early evening local thundershowers. During June, July, August, and September, measurable rainfall can be expected every other day. Summer showers are sometimes heavy; 2 or 3 inches of rainfall can occur in an hour or two. Daylong rains in summer are rare and are almost always associated with a tropical storm. Winter and spring rains are generally associated with large scale, continental weather developments and are of longer duration. Some last for 24 hours or longer. These storms are generally not as intense as the thundershowers, but occasionally they do release large amounts of rainfall over large areas. A 24-hour rainfall of 7 inches or more falls about 1 year in 10.

Hail occurs at irregular intervals in thundershowers. The individual pieces of hail are generally small and seldom cause much damage. Snow is very rare in the area and usually melts as it hits the ground.

Tropical storms can affect the area at any time from early June through mid-November. These storms diminish in intensity quite rapidly as they move inland.

The likelihood of a hurricane in Jefferson County is about once every 13 years, but fringe effects are felt about once every 5 years. Extended periods of dry weather or droughts can occur in any season, but they are most common in spring and fall. Droughts or dry periods in April and May, although generally of shorter duration than those in fall, are intensified by higher temperatures.

As cold, continental air flows eastward across the Florida panhandle toward Jefferson County, the cold is appreciably modified. The coldest weather is generally the second night after the arrival of the cold front after heat is lost through radiation. The average date of the first freezing temperature is about November 23. The average date of the last freezing temperature is about March 3. Frost has occurred, however, as early as November 1 and as late as April 15.

Summer temperatures are moderated by the Gulf breeze and by cumulus clouds that frequently shade the land without completely obscuring the sun. Mean average temperature in June, July, August, and September is about 78 degrees F. Temperatures of 86 degrees or higher have occurred in May, June, July, August, and September, but 100 degrees is reached only rarely. In June, July, and August, the warmest months, the average maximum temperature is 90 degrees. Temperatures above 95 degrees occur on fewer than 22 days. Temperature and precipitation data are shown in table 1.

Fog occurs on an average of 6 mornings a month in winter and spring and almost never in summer and fall. Prevailing winds are generally from the south in spring and summer. In October, November, December, and January, winds blow from the north. The mean windspeed for the year is 7.3 miles per hour. The lowest monthly mean windspeed, 5.8 miles per hour, occurs in August. The highest, 9 miles per hour, occurs in March.

History

Carol Miller, Ph.D. in history, helped prepare this section.

The first Europeans to enter what was to become Jefferson County were the members of Panfilo de Narvaez's expedition. They passed through an Apalachee town in 1528. In the 17th century, the Franciscans administered five missions in the county along an east-west line near what would become U.S. Highway 27. These missions were destroyed at the beginning of the 18th century by the English governor of South Carolina in retaliation against Spanish depredations. When American settlers entered the county in the 19th century, the land was occupied not by the Apalachees, who had been dispersed when the missions were abandoned, but by Miccosukees, a branch of the Creeks who became part of the Seminole group.

Florida was ceded by Spain to America in 1818. Settlement of Jefferson County was spurred both by its proximity to Tallahassee, the newly selected capital, and by the suitability of its soil for cotton cultivation. Early settlers bought large tracts of virgin forest, or, if they could, the old fields of the Indians. They cleared this land to plant cotton.

Jefferson County was separated from Leon County in 1827. Robison's Post Office was named its county seat, superseding the older settlement of Waukeenah. The county seat was soon renamed Monticello. The county quickly acquired its first school, the Jefferson Academy, and a courthouse. Its prosperity suffered in the late 1830's when many of the settlers went to fight in the Seminole War. The failure of the Union Bank in Tallahassee also affected the county. In the 1850's, county residents who had been endeavoring to make the Wacissa and Aucilla Rivers navigable by canals adopted the railroad instead as their means of transportation. The arrival of the train at Station Number Two signaled the birth of Lloyd, which prospered with the railroads until the 1930's. The railroad also gave a boost to Aucilla, but Monticello was left stranded three miles north of the main track.

The Civil War broke out while the county was still burdened by its heavy railroad debt. In the war's aftermath, county planters struggled with debt and fluctuating cotton profits. Within a few years, farmers and store owners all found themselves trapped in the endless cycle of credit, which characterized sharecropping.

In the 1880's, farmers began looking for other crops. William Cirardeau sent out the first shipment of watermelon seed in 1882, and 40 years later, Jefferson County produced 80 percent of the world's supply. The Le Conte pear was also produced, but pecans were a larger cash crop. The flatwoods in the southern part of the county supplied both turpentine and lumber.

While Jefferson County held its own in agriculture after the Civil War, it failed to gather a large share of the new tourist trade. However, northerners did come to spend their winters at St. Elmo's Hotel in Monticello or to fish at the head of the Wacissa, but their role in the county's economy was ultimately not that of the tourist. After the agricultural depression of the 1920's, several winter visitors bought up vast tracts of Jefferson County to use as hunting preserves.

Natural Resources

J. William Yon and Ronald W. Hoenstine, Florida Geological Survey, helped prepare this section.

Located in the eastern part of the Florida panhandle, Jefferson County encompasses a transitional geologic area that separates the thick Tertiary carbonate sediment characteristic of the Florida peninsula from the predominant age-equivalent clastic sediment of western

Florida. This area is underlain by thick limestones, dolomites, sands, and clays in the northern half of the county.

The two major physiographic divisions in Jefferson County are the Northern Highlands and the Coastal Lowlands *(9)*. The Northern Highlands extend over the northern two-thirds of the county, and the Coastal Lowlands are in the remaining third of Jefferson County.

The boundary between the two divisions is a well-defined, southward-facing escarpment, the Cody Scarp. This escarpment is considered to be one of the most persistent topographic breaks in Florida.

The Northern Highlands include a prominent physiographic feature known as the Tallahassee Hills, which lies between the Florida-Georgia state line on the north and the Gulf Coastal Lowlands on the south. The Tallahassee Hills are erosional-remnant hills and ridges that have elevations up to 260 feet. However, a relatively large low area associated with a number of hills is along the eastern side of the county. Although the Tallahassee Hills in this area have been highly dissected by stream erosion and subsurface solution, they probably once represented a nearly flat Miocene delta plain that covered all of northern Jefferson County.

The Gulf Coastal Lowlands are markedly lower in elevations than the Northern Highlands. They include such features as the Woodville Karst Plain, the River Valley Lowlands, and Pleistocene age terraces and associated shorelines. The Woodville Karst Plain is a low, gently sloping plain consisting of sand dunes lying on a limestone surface that begins in the southern part of Leon County and extends southward through Wakulla County to the Gulf. The River Valley Lowlands are all valleys in Jefferson County including those of the St. Marks, Wacissa and Penhook Rivers. The Pleistocene age terraces, beginning with the youngest and lowest in elevation, are the Silver Bluff, Pamlico, and Wicomico. Elevations of these terraces are 10 feet, 15 to 20 feet, and 100 feet, respectively.

Soil suitability for various uses is normally based on evaluations of properties within the soil alone. Interpretations in this soil survey are made as to what effects these properties could have on use. Many geologic features are not expressed within the soil but may significantly affect the suitability of a site for a particular use. Individual sites should be evaluated by onsite examination and testing. In many cases, special planning, design, and construction techniques can be used to overcome geologic problems where they are identified and evaluated.

Ground Water

The Floridan Aquifer is the principal water-bearing unit in Jefferson County. It includes all of the Middle Eocene to Early Miocene formations. This aquifer is believed to be recharged by Lake Miccosukee through sinkholes in addition to recharge along the Aucilla River. In the northeastern part of the county, leakage occurs from swamp areas through the overlying sediment of the Hawthorn and Miccosukee formations.

Secondary artesian aquifers are in northern Jefferson County. These aquifers occur within discontinuous units of limestone, dolomite, and sand that formed the Hawthorn Formation. The amount of water obtained from the secondary aquifers is minimal in comparison to the underlying Floridan Aquifer but may be sufficient for small domestic supplies. In addition, the quality of water is diminished relative to the Floridan Aquifer by the presence of more dissolved solids.

Other sources of water within the county include water table aquifers that occur within the surficial sand deposits at higher elevations. These aquifers receive recharge primarily from rainfall or through upward percolation of underlying aquifers when their potentiometric surfaces are higher than that of the water table. Water quality in these aquifers is diminished because of the high concentration of iron.

Wells provide the water supply for most of the homes and irrigated crops throughout the county. The wells are dug into the underlying limestone to the aquifer and cased to the limestone.

Farming

Agriculture is the dominant element of the Jefferson County economy. About 15 percent of the population is employed on-farm, and another 10 percent is employed in agricultural-related fields. It is estimated that over 30 percent of the gross county income is derived from agriculture. Gross farm income in 1981 was estimated in excess of 24 million dollars.

Production is extremely diversified. Livestock operations include cow-calf and stocker-grazer beef production, dairying, and swine. About 2,500 cows are milked at six dairies. Cattle are grazed on permanent pasture and small grain-clover winter pasture. Row crop production includes corn, soybeans, peanuts, grain and forage sorghum, cotton, flue-cured tobacco, and small grains. About 2,000 acres is in watermelons. Various fresh vegetables are marketed at Thomasville State Farmers' Market. Jefferson County also has a livestock auction market and several farm supply and grain buying facilities.

Nursery stock contributes some 5 million dollars in gross sales annually. Woody ornamentals and fruit nursery stock are produced. Jefferson County provides up to 50 percent of the national supply of improved budded and grafted pecan trees from its nurseries. It is the largest pecan (nut) producing county in Florida. Nursery stock is moved wholesale throughout the eastern United States. Timber for sawlogs, posts, and pulpwood is produced on large tracts as well as in farm woodlots. Plantations maintained for multipurposes of timber, crops, and recreation are in Jefferson County. Quail, dove, turkey, and deer are also in the county.

Diversity is not only exemplified in many crop and livestock enterprises, but also in farm size. More than 830 farms average 460 acres. However, a third of the farms are 50 acres or less, and two-thirds are less than 180 acres. About 70 percent of the farms responding to the 1978 Census of Agriculture had gross sales of 20 thousand dollars or less. More than 50 percent of the farm operators hold off-farm jobs.

High quality water is relatively abundant for irrigation. Jefferson County water use is managed by the Suwannee River Water Management District in the eastern part of the county and by the North West Florida Water Management District in the western part.

The University of Florida Institute of Food and Agricultural Science operates an Agricultural Research Center of 120 acres and a faculty of five researchers. Fruit and ornamental horticulture is the main area of research.

Transportation

Jefferson County is well served by a network of county, state, and federal highways. Interstate Highway 10 and U.S. Highway 90 traverse the central part of the county on an east-west route, and U.S. Highway 19 serves north-south traffic through the county. U.S. Highway 90 and U.S. Highway 19 intersect in Monticello.

The Seaboard System Railroad provides freight transportation on east-west and north-south routes across the county.

Regularly scheduled air transportation is not available within the county. Emergency medical helicopter service is available to county residents. Commercial air passenger service is available at Tallahassee Municipal Airport, about 30 miles from Monticello.

How This Survey Was Made

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

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, 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 can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

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

The soils in the survey area vary widely in their potential for major land uses. Table 3 shows the extent of the map units shown on the general soil map. It lists the limitations of each map unit for major land uses and the potential productivity for woodland.

Each map unit is rated for *cropland, pasture, woodland, sanitary facilities, building sites,* and *recreation areas*. Cropland is soil on which cultivated crops, such as corn and soybeans, are grown extensively. Pasture is soil on which pasture forage is grown extensively. Woodland refers to areas of native or introduced trees. Building sites include residential and commercial developments. Recreation areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

Soils of the Ridges, Low Ridges, and Broad Flats

The two general soil map units in this group are made up of soils that are excessively drained to poorly drained and nearly level to gently rolling. The soils are on sandy ridges and broad flats of uplands and on natural river levies in two major areas of the county. One area of these soils is on the east side of the county, and the other is on the west side south of Ashville and Lake Miccosukee to the Cody Scarp. Some of the soils are sandy throughout, some have thin lamellae below a depth of 40 inches, and some are sandy to a depth of 40 to 74 inches and loamy below.

1. Chipley-Alpin-Ortega

Nearly level to gently rolling, somewhat poorly drained, moderately well drained, and excessively drained soils that are sandy to a depth of at least 80 inches

This map unit is on sandy ridges on uplands and low ridges on the flatwoods in the western part of the county, from Cody north and west along the Leon County line, from Fanlew west to the Leon County line and in the Calico Hills. Native vegetation includes longleaf and slash pines, mixed hardwoods, and an understory of honeysuckle, pineland threeawn, and running oak.

This map unit makes up about 6,140 acres, or 1.6 percent of the land area in the county. It is about 30 percent Chipley soils, 24 percent Alpin soils, 13 percent Ortega soils, and 33 percent soils of minor extent.

Chipley soils are somewhat poorly drained or moderately well drained. Typically, the surface layer is very dark gray and dark grayish brown fine sand about 12 inches thick. The underlying material is fine sand to a depth of at least 80 inches. To a depth of 39 inches, it is yellowish brown and light yellowish brown with brown and yellow mottles in the lower part. To a depth of 72 inches, the underlying material is very pale brown with brown and reddish yellow mottles. Below that, it is light gray.

Alpin soils are excessively drained. Typically, the surface layer is dark grayish brown fine sand about 4 inches thick. The subsurface layer extends to a depth of about 47 inches and is fine sand. It is yellowish brown to a depth of 20 inches, brownish yellow to a depth of 40 inches, and yellow below that. The underlying material is very pale brown fine sand that has strong brown loamy fine sand lamellae bands 1 to 2 centimeters thick. It extends to a depth of at least 80 inches.

Ortega soils are moderately well drained. Typically, the surface layer is very dark gray fine sand about 5 inches thick. The underlying material is fine sand to a depth of at least 80 inches. It is brown and light yellowish brown to a depth of 41 inches, pale yellow with strong brown and brownish yellow mottles to a depth of 58 inches, and white with brownish yellow and reddish yellow mottles to a depth of 70 inches. It is white below that.

Of minor extent in this map unit are the Albany, Lakeland, Troup, Bibb, Blanton, Lucy, Rutlege, Plummer, Sapello, and Leon soils.

Some of the acreage of this map unit has been cleared for improved pasture, hay, or crops. Much of the acreage is in planted pines or natural woodland.

2. Albany-Plummer-Blanton

Nearly level to gently sloping, somewhat poorly drained, poorly drained, and moderately well drained soils that are sandy to a depth of 40 to 79 inches and loamy below

This map unit is on low knolls, natural river levies, and drainageways of uplands and on low knolls on the flatwoods. It is on the eastern side of the county from Ashville south along the Aucilla River to the Cody Scarp just south of Lamont and on the western side from Lloyd to just south of Wacissa. Native trees include longleaf pine, loblolly pine, slash pine, live oak, white oak, laurel oak, water oak, sweetgum, hickory, and persimmon trees. The understory is woody brushes and vines.

This map unit makes up about 45,832 acres, or 11.9 percent of the land area in the county. It is about 26 percent Albany soils, 24 percent Plummer soils, 11 percent Blanton soils, and 39 percent soils of minor extent.

Albany soils are somewhat poorly drained. Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer is sand to a depth of 55 inches. It is brown and pale brown in the upper part and white in the lower part. It has mottles in shades of brown and gray. The subsoil extends to a depth of at least 80 inches. It is very pale brown sandy loam to a depth of 60 inches and light brownish gray sandy clay loam below that. The subsoil has mottles in shades of brown, yellow, and gray.

Plummer soils are poorly drained. Typically, the surface layer is black fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 69 inches. It is grayish brown to a depth of 18 inches, gray to a depth of 43 inches, and light gray below that. The subsoil extends to a depth of at least 80 inches. It is light gray sandy loam in the upper part and light gray sandy clay loam in the lower part. The subsoil has few to common mottles in shades of brown and yellow.

Blanton soils are moderately well drained. Typically, the surface layer is very dark grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 63 inches. It is yellowish brown, light yellowish brown, brownish yellow, and very pale brown. The subsoil is sandy clay loam to a depth of at least 80 inches. To a depth of 74 inches, it is brownish yellow with strong brown mottles, and below that, it is light gray with brownish yellow, strong brown, and yellowish red mottles.

Of minor extent in this map unit are the Lucy, Troup, Sapelo, Fuquay, Leefield, Surrency, Pelham, Chipley, Dothan, and Bibb soils.

Some of the acreage of this map unit has been cleared for crops, pasture, or hay. Much of the acreage is in planted pines, but some remains in native woodlands of mixed hardwoods and pines.

Soils of the Rolling Uplands

The two general soil map units in this group are made up of soils that are well drained and nearly level to rolling. The soils are on uplands in the northern part of the county. They are sandy or loamy and have a loamy or clayey subsoil within a depth of 20 inches, or they are sandy from 0 to 40 inches and loamy below.

3. Orangeburg-Dothan-Fuquay

Nearly level to rolling, well drained soils; some are loamy throughout, some are sandy to a depth of less than 20 inches and loamy below, and some are sandy to a depth of 20 to 40 inches and loamy below

This map unit is on nearly level to rolling uplands in the north central part of the county. It encompasses a major part of the uplands of Jefferson County from the Cody Scarp just north of Wacissa, north to the Georgia state line. There is also an area east of the Aucilla River in the Ashville area extending to Madison County and the Georgia state line. Native trees include longleaf pine, loblolly pine, shortleaf pine, live oak, red oak, white oak, and hickory. The understory is woody bushes and vines.

This map unit makes up about 136,120 acres, or 36.1 percent of the land area in the county. It is about 25 percent Orangeburg soils, 22 percent Dothan soils, 19 percent Fuquay soils, and 34 percent soils of minor extent.

Orangeburg soils are well drained. Typically, the surface layer is very dark grayish brown sandy loam about 7 inches thick. The subsoil extends to a depth of at least 80 inches. It is red sandy loam in the upper part and red sandy clay in the lower part.

Dothan soils are well drained. Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil extends to a depth of at least 80 inches. It is yellowish brown fine sandy loam and sandy clay loam in the upper part, and in the middle part, it is yellowish brown sandy clay loam that has more than 5 percent plinthite. The lower part of the subsoil is sandy clay loam. It is reticulately mottled in shades of brown, yellow, red, and gray.

Fuquay soils are well drained. Typically, the surface layer is dark brown fine sand about 7 inches thick. The subsurface layer is yellowish brown fine sand to a depth of about 37 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish brown sandy loam and sandy clay loam in the upper part, and the lower part is reticulately mottled red, yellowish brown, and light gray sandy clay loam. The subsoil contains 6 to 10 percent plinthite.

Of minor extent in this map unit are the Lucy, Bonifay, Cowarts, Troup, Blanton, Faceville, Albany, Tifton, Leefield, Pelham, Surrency, and Miccosukee soils.

Much of the acreage of this map unit is cleared for hay, pasture, and cultivated crops (fig. 1). The rest is in planted pines or native woodland.

4. Orangeburg-Faceville-Dothan

Gently undulating to rolling, well drained soils; some are loamy throughout and some are sandy or loamy and have a loamy or clayey subsoil within a depth of 20 inches

This map unit is on uplands in the northwest corner of the county, adjacent to Leon County and Georgia and is north and east of Lake Miccosukee. It is made up of soils on gently undulating to rolling uplands and in strongly sloping areas near drainageways. Native trees include longleaf pine, loblolly pine, shortleaf pine, live oak, red oak, white oak, and hickory. The understory is woody bushes and vines.

This map unit makes up about 23,400 acres, or 6 percent of the land area in the county. It is 33 percent Orangeburg soils, 32 percent Faceville soils, 14 percent Dothan soils, and 21 percent soils of minor extent.

Orangeburg soils are well drained. Typically, the surface layer is very dark grayish brown sandy loam about 7 inches thick. The subsoil extends to a depth of more than 80 inches. It is red sandy clay loam in the upper part and red sandy clay in the lower part.

Faceville soils are well drained. Typically, the surface layer is brown fine sandy loam about 14 inches thick. The subsoil is red and dark red sandy clay to a depth of 80 inches. It has mottles in shades of yellow and brown.

Dothan soils are well drained. Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil extends to a depth of at least 80 inches. To a depth of 49 inches, it is yellowish brown fine sandy loam and sandy clay loam, and to a depth of 62 inches, it is yellowish brown sandy clay loam that has more than 5 percent plinthite. Below that, the subsoil is sandy clay loam that is reticulately mottled in shades of brown, yellow, red, and gray.

Of minor extent in this map unit are the Lucy, Fuquay, Pelham, Rains, Leefield, Cowarts, and Miccosukee soils.

Figure 1.—Soils of the Orangeburg-Dothan-Fuquay general soil map unit are moderately suitable for cultivated crops.

Much of the acreage of this map unit has been cleared for hay and pasture or cultivated crops. The rest is in planted pines or native woodland.

Soils of the Upland River Drainages, Depressions, and Swamps

The three general soil map units in this group are made up of soils that are poorly drained to very poorly drained. The soils are on river flood plains, in depressions and swamps, and along shore lines of lakes throughout the northern half of the county. They are nearly level to gently sloping. Some of these soils are sandy to a depth of 40 inches and loamy below, some are sandy to a depth of 68 inches and loamy below, some are loamy to a depth of less than 20 inches and clayey below, and other are organic to a depth of 12 to 50 inches and loamy below.

5. Surrency-Pelham-Pamlico

Nearly level, very poorly drained or poorly drained soils; some are sandy to a depth of 20 to 40 inches and loamy below, and some are organic to a depth of 50 inches and sandy below

This map unit is in depressions, swamps, and drainageways mostly to the east of Monticello in the Wolf Creek, Grease Swamp, Sneads Smokehouse Lake, Anderson Bay, and Buggs Creek areas, but some small areas are around Lake Miccosukee. Native vegetation is mainly water-tolerant grasses and trees including baldcypress, sweetgum, blackgum, sweetbay, magnolia, water oak, slash pine, gallberry, bluestem, switchgrass, plumegrass, and sedges.

This map unit makes up about 49,575 acres, or about 12.8 percent of the land area in the county. It is about 38 percent Surrency soils, 25 percent Pelham soils, 12 percent Pamlico soils, and about 25 percent soils of minor extent.

The Surrency soils are very poorly drained. Typically, the surface layer is dark gray and very dark gray fine sand about 15 inches thick. The subsurface layer is light gray fine sand to a depth of about 26 inches. The subsoil extends to a depth of at least 80 inches. It is light gray fine sandy loam in the upper part and light gray sandy clay loam in the lower part. The subsoil has dark yellowish brown mottles throughout.

The Pelham soils are poorly drained. Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer is dark grayish brown and grayish brown fine sand to a depth of about 34 inches. The subsoil extends to a depth of at least 80 inches. To a depth of 49 inches, it is light gray fine sandy loam that has strong brown mottles, and below that, it is light gray sandy clay loam that has strong brown and red mottles.

The Pamlico soils are very poorly drained. Typically, the soil is very dark brown muck to a depth of about 4 inches. Beneath that, it is black muck to a depth of about 27 inches. The substratum is dark brown fine sand that extends to a depth of at least 80 inches.

Of minor extent in this map unit are the Plummer, Mascotte, Sapelo, Rains, Leefield, Dorovan, Lynchburg, and Albany soils.

Most of the acreage of this map unit is in natural vegetation, but some areas are in planted pines.

6. Byars-Pelham-Leefield

Nearly level to gently sloping, very poorly drained to somewhat poorly drained soils along drainageways; some are loamy to a depth of less than 20 inches and clayey below, and some are sandy to a depth of 20 to 40 inches and loamy below

This map unit is along the Ward Creek flood plain north of Monticello. It is made up of soils that are nearly level to gently sloping. The native vegetation is blackgum, tupelo gum, slash pine, water oak, sweetgum, and greenbriers.

This map units makes up about 5,720 acres, or about 1.5 percent of the land area in the county. It is about 48 percent Byars soils, 21 percent Pelham soils, 15 percent Leefield soils, and 16 percent soils of minor extent.

The Byars soils are very poorly drained. Typically, the surface layer is very dark gray fine sandy loam about 12 inches thick. The subsoil is sandy clay to a depth of 65 inches. It is gray in the upper part and light gray in the lower part. The underlying material is light gray sandy loam to a depth of 80 inches.

The Pelham soils are poorly drained. Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer is dark grayish brown and grayish brown fine sand to a depth of about 34 inches. The subsoil extends to a depth of at least 80 inches. To a depth of 49 inches, it is light gray fine sandy loam that has strong brown mottles. Below that, it is light gray sandy clay loam that has strong brown and red mottles.

The Leefield soils are somewhat poorly drained. Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 32 inches. It is pale yellow and yellow to a depth of 29 inches and light yellowish brown with yellowish brown and gray mottles below that. The subsoil extends to a depth of at least 80 inches. To a depth of 38 inches, it is light yellowish brown sandy loam that has mottles in shades of brown and gray, and to a depth of 63 inches it is gray sandy clay loam that has yellowish brown mottles. The lower part of the subsoil is reticulately mottled light gray, yellow, yellowish brown, and strong brown sandy clay loam.

Of minor extent in this map unit are the Pamlico, Dorovan, Surrency, Rains, Lynchburg, Dothan, Albany, and Fuquay soils.

Most of the acreage of this map unit is in natural vegetation. Some areas are in planted pines or cleared for pasture.

7. Plummer, flooded

Nearly level, poorly drained soils that are sandy to a depth of about 68 inches and loamy below

This map unit is mostly on the Aucilla River flood plain in the western part of the county. It is made up of nearly level soils. The natural vegetation is blackgum, sweetgum, slash pine, waxmyrtle, cypress, maple, maidencane, and smilax.

This map unit makes up about 3,560 acres, or about 0.9 percent of the land area in the county. It is about 75 percent Plummer soils that are flooded and 25 percent soils of minor extent.

Plummer soils are poorly drained and frequently flooded. Typically, the surface layer is dark grayish brown fine sand. The subsurface layer, to a depth of 68 inches, is dark grayish brown, grayish brown, and brown fine sand that has mottles in shades of brown. The subsoil extends to a depth of at least 80 inches. It is gray sandy clay loam that has yellowish brown mottles.

Of minor extent in this map unit are Plummer soils that do not flood, and Albany, Surrency, Rutlege, Bibb, and Pelham soils.

Almost all of the acreage of this map unit is in natural vegetation.

Soils of the Flatwoods and Coastal Marshes

The five general soil map units in this group are made up of soils that are nearly level and moderately well drained to very poorly drained. The soils are on the flatwoods. Some of the soils are sandy throughout, some are sandy to a depth of 40 to 79 inches and loamy below, and some are sandy to a depth of less than 20 to 40 inches and loamy below. Limestone bedrock is at a depth of 21 to 60 inches in some of the soils in this group.

8. Bayvi

Nearly level, very poorly drained soils that are muck to a depth of 5 inches and sandy to a depth of at least 80 inches

This map unit is on the tidal marsh of the coast line of Jefferson County. It is made up of nearly level soils. The natural vegetation consists of needlegrass rushes, saltgrass, smooth cordgrass, and marshhay cordgrass.

This map unit makes up about 4,010 acres, or about 1 percent of the land area in the county. It is about 65 percent Bayvi soils and 35 percent soils of minor extent.

Bayvi soils are very poorly drained. Typically, these soils are black muck about 5 inches thick. Below that, they are black mucky loamy sand to a depth of 17 inches and very dark grayish brown sand to a depth of 31 inches. The underlying material is gray sand to a depth of 80 inches.

Of minor extent in this map unit are Chaires depressional, Nutall, and Tooles soils and soils similar to the Bayvi soils but they have limestone bedrock within a depth of 80 inches and muck to a depth of more than 8 inches.

9. Chaires-Leon

Nearly level, poorly drained soils; some are sandy to a depth of 40 to 79 inches and loamy below, and some are sandy throughout

This map unit is in the northern part of the flatwoods south of Cody Scarp. One area of this map unit is south and west of the Wacissa River, and another area is the sandier soils of the Calico Hills.

The natural vegetation includes slash pine, longleaf pine, water oak, laurel oak, waxmyrtle, sawpalmetto, and broomsedge bluestem.

This map unit makes up 59,220 acres, or about 15.3 percent of the land area in the county. It is about 48 percent Chaires soils, 13 percent Leon soils, and 39 percent soils of minor extent.

Chaires soils are poorly drained. Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface horizon is white fine sand to a depth of about 29 inches. The subsoil extends to a depth of at least 80 inches. It is very dark brown and very dark grayish brown fine sand and loamy fine sand in the upper part and light olive gray and light greenish gray fine sandy loam in the lower part.

Leon soils are poorly drained. Typically, the surface layer is black fine sand about 5 inches thick. The subsurface layer is gray and light gray fine sand to a depth of about 21 inches. The subsoil extends to a depth of 53 inches. It is very dark brown and dark brown fine sand. The next layer to a depth of 57 inches is grayish brown fine sand, and to a depth of 80 inches or more, it is black fine sand.

Of minor extent in this map unit are the Surrency, Pamlico, Dorovan, Tooles, Rutlege, Mascotte, Albany, Chipley, and Plummer soils.

Most of the soils of this map unit are used for planted pines. The wetter areas are in native hardwoods.

10. Nutall-Tooles, flooded

Nearly level, very poorly drained soils that are sandy to a depth of 10 to 40 inches and loamy below; underlain by limestone

This map unit is made up of soils that are very poorly drained. The soils are on flatwoods along the Wacissa River and Welaunee Creek below the Cody Scarp, extending to the coastal marsh below the confluence of the Wacissa and Aucilla Rivers. Native trees include tupelo, sweetgum, baldcypress, and water oak.

This map unit makes up about 18,385 acres, or about 4.8 percent of the land area in the county. It is 40 percent Nutall soils that are flooded, 38 percent Tooles soils that are flooded, and 22 percent soils of minor extent.

Nutall soils are very poorly drained and frequently flooded. Typically, the surface layer is black fine sand about 6 inches thick. The next layer to a depth of 9 inches is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 17 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 30 inches.

Tooles soils are very poorly drained and frequently flooded. Typically, the surface layer is black fine sand about 7 inches thick. The next layer is very dark gray and light gray fine sand to a depth of about 16 inches. The subsurface layer is fine sand to a depth of about 39 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 46 inches.

Of minor extent in this map unit are the Nutall and Tooles soils that are not flooded, Chaires depressional, Tooles depressional, and Bayvi soils.

Most of the acreage of this map unit is in native vegetation. Some of the dryer areas are used for planted pines.

11. Tooles-Nutall

Nearly level, poorly drained soils that are sandy to a depth of 20 to 40 inches and loamy below; underlain by limestone

This map unit is on the flatwoods and extends from south of the Calico Hills to the coastal marshes on the west side of Wacissa River. It is also in a small area on the east side of the Wacissa River along Cow Creek. The native trees include slash pine, longleaf pine, laurel oak, sweetgum, cabbage palm, red maple, and waxmyrtle.

This map unit makes up about 28,920 acres, or 7.5 percent of the land area of the county. It is about 36 percent Tooles soils, 28 percent Nutall soils, and 36 percent soils of minor extent.

Tooles soils are poorly drained. Typically, the surface layer is black fine sand about 5 inches thick. The next layer is very dark gray and light gray fine sand to a depth of about 9 inches. The subsurface layer is fine sand to a depth of about 32 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 46 inches.

Nutall soils are poorly drained. Typically, the surface layer is black fine sand about 4 inches thick. The next layer is very dark gray and light gray fine sand to a depth of about 9 inches. The subsurface layer is fine sand to a depth of about 17 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 30 inches.

Of minor extent in this map unit are the Tooles depressional, Chaires depressional, Chaires, and Chiefland soils.

Most of the acreage of this map unit has been clearcut, bedded, and planted to slash pines. Some of the acreage is in natural stands of mixed hardwoods, pines, and palms.

12. Chiefland-Chiefland, flooded

Nearly level, moderately well drained soils that are sandy to a depth of 20 to 40 inches and loamy below; underlain by limestone containing solution holes between depths of 40 and 60 inches

This map unit is in the Goose Pastures area east of the Wacissa River to the Taylor County line. The natural vegetation is live oak, laurel oak, slash pine, longleaf pine, red maple, hackberry, chalky bluestem, and persimmon.

This map unit makes up about 2,340 acres, or about 0.6 percent of the land areas in the county. It is about 40 percent Chiefland soils that are not flooded, 20 percent Chiefland soils that are flooded, and 40 percent soils of minor extent.

Chiefland soils that are not flooded are moderately well drained. Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is light gray fine sand to a depth of about 25 inches. The subsoil is brownish yellow fine sandy loam to a depth of 32 inches. It is underlain by yellow, soft, weathered limestone to a depth of about 49 inches. Limestone bedrock is below this layer.

Chiefland soils that are flooded are also moderately well drained. Typically, the surface layer is dark gray fine sand 12 inches thick. The subsurface layer, to a depth of 40 inches, is pale brown, light yellowish brown, or very pale brown fine sand. Mottles in shades of yellow or brown are in the lower part of the subsurface layer. The subsoil, to a depth of 52 inches, is yellowish brown sandy loam that has fine yellowish brown mottles. It is underlain by soft limestone that contains solution holes.

Of minor extent in this map unit are the Chaires soils and flooded and nonflooded phases of the Nutall and Tooles soils.

Most of the soils of this map unit are used for planted pines.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the limitations of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Plummer fine sand, frequently flooded, is one of several phases in the Plummer series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Nutall-Tooles complex is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations and capabilities for many uses. The Glossary defines many of the terms used in describing the soils.

2—Ortega fine sand, 0 to 5 percent slopes. This soil is moderately well drained and nearly level to gently sloping. It is on convex knolls on uplands and flatwoods. Individual areas of this soil are irregular in shape and range from 5 to 100 acres.

Typically, the surface layer is very dark gray fine sand about 5 inches thick. The underlying material is fine sand to a depth of at least 80 inches. It is yellowish brown and light yellowish brown to a depth of 41 inches, pale yellow with strong brown and brownish yellow mottles to a depth of 58 inches, and white with brownish yellow and reddish yellow mottles to a depth of 70 inches. Below that, it is white.

Included in mapping are small areas of Blanton, Chipley, and Sapelo soils. Also included are small areas of soils that have a thicker surface layer than that of the Ortega soil. The included soils make up less than 15 percent of the map unit.

This Ortega soil has a seasonal high water table that fluctuates between depths of 60 and 72 inches for more than 6 months in most years and is within a depth of 40 to 60 inches for 1 or 2 months during heavy rainfall periods. The available water capacity is low in the surface layer and very low in the underlying material. Permeability is rapid. Natural fertility is low.

The natural vegetation is dominantly longleaf pines and turkey oak with a ground cover of pineland threeawn.

This Ortega soil has severe limitations for most cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduces potential yields of adapted crops. The high water table between depths of 40 and 60 inches affects the availability of water by providing water through capillary rise to supplement the low available water capacity. In very dry seasons, the high water table drops to well below the root zone, and little capillary water is available to plants. Row crops need to be planted in strips on the contour with alternate strips of close-growing crops. Crop rotations also need to include close-growing crops on the land at least two-thirds of the time. This soil needs fertilizer and lime for all crops. Soil-improving cover crops and all crop residue need to be left on the ground. Irrigation of high-value crops is generally feasible where irrigation water is readily available. Intensive management of soil fertility and water is needed for optimum crop production.

This soil has moderate limitations for use as pasture and for hay. Droughtiness and rapid leaching of nutrients from the soil are the major limiting factors. Plants, such as coastal bermudagrass and bahiagrass, are well adapted, but they require fertilizer and lime. Controlled grazing is needed to maintain vigorous plants for maximum yields. Intensive management of soil fertility and water is needed for optimum productivity of this soil for pasture and hay.

This soil has moderately high potential productivity for longleaf and slash pines, and these pines are the best trees to plant. Droughtiness is the major limitation.

This soil has severe limitations for sanitary landfills, shallow excavations, and lawns and landscaping. It has moderate limitations for septic tank absorption fields and dwellings without basements. Wetness and seepage affect these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of the sandy surface. See table 8 for information concerning factors that can affect recreational development.

This Ortega soil is in capability subclass IIIs and in woodland suitability group 10S.

3—Chipley fine sand, 0 to 5 percent slopes. This soil is somewhat poorly drained or moderately well drained and nearly level to gently sloping. It is on slightly convex knolls on uplands and flatwoods. Individual areas of this soil are irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is very dark gray and dark grayish brown fine sand about 12 inches thick. The underlying material is fine sand to a depth of at least 80 inches. To a depth of 39 inches, it is yellowish brown and light yellowish brown with mottles in shades of brown and yellow in the lower part. To a depth of 72 inches, the underlying material is very pale brown with brown and reddish yellow mottles, and below that, it is light gray.

Included in mapping are small areas of Albany, Ortega, and Sapelo soils. The included soils make up less than 15 percent of the map unit.

This Chipley soil has a seasonal high water table within a depth of 20 to 40 inches for 2 to 4 months and within a depth of 40 to 72 inches for the rest of the year. The available water capacity is low in the surface layer and very low in the underlying material. Permeability is rapid. Natural fertility is low.

The natural vegetation is dominantly slash pine, longleaf pine, mixed hardwoods, and a ground cover of pineland threeawn.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients from the soil limit the choice of plants and reduce potential yields of adapted crops. The high water table within 20 to 40 inches of the surface in wet seasons affects the availability of water in the root zone by providing water through capillary rise to supplement the low available water capacity. In very dry seasons, the water table drops well below the root zone and little capillary water is available to plants. Row crops need to be planted in strips on the contour with alternate strips of close-growing crops. Crop rotations also need to include close-growing crops on the land at least two-thirds of the time. This soil needs lime and fertilizer for all crops. Soil-improving cover crops and crop residue need to be left on the land. Irrigation of high-value crops is generally feasible where irrigation water is readily available. Tile or other drainage is needed for some crops that are damaged by the high water table during the growing seasons. Intensive management of soil fertility and water is needed for optimum crop production.

The Chipley soil has moderate limitations for use as pasture and for hay. Droughtiness and rapid leaching of nutrients from the soil are the major limiting factors. Intensive management of soil fertility and water is required for optimum productivity of this soil. Plants, such as coastal bermudagrass and bahiagrass, are well adapted, but they require fertilizer and lime. Controlled grazing is needed to maintain vigorous plants for maximum yields.

This soil has high potential productivity for pine trees. Slash pine and longleaf pine are the best trees to plant. Droughtiness of this sandy soil is the major limitation.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings with basements, and lawns and landscaping. It has moderate limitations for dwellings without basements, small commercial buildings, and local roads and streets. Wetness and seepage are some of the limiting factors affecting these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of the sandy surface. See table 8 for more information concerning factors that can affect recreational development.

This Chipley soil is in capability subclass IIIs and in woodland suitability group 11S.

4—Surrency fine sand. This soil is very poorly drained and nearly level. It is in drainageways and depressions on uplands and flatwoods. Individual areas of this soil are circular or irregular in shape and range from 3 to 800 acres. Slopes are less than 1 percent.

Typically, the surface layer is dark gray and very dark gray fine sand about 15 inches thick. The subsurface layer is light gray fine sand to a depth of about 26 inches. The subsoil extends to a depth of at least 80 inches. It is light gray fine sandy loam in the upper part and light gray sandy clay loam in the lower part. It has dark yellowish brown mottles throughout.

Included in mapping are small areas of Pamlico, Pelham, and Plummer soils. Also included are small areas of soils that have a mucky surface layer less than 15 inches thick. The included soils make up less than 15 percent of the map unit.

This Surrency soils is ponded for 6 to 9 months of the year, and the high water table is at or near the surface for the remainder of the year. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is blackgum, cypress, sweetbay, slash pine, and pond pine in the overstory, and swamp cyrilla, little leaf cyrilla, azalea, gallberry, smilax, and brambles in the understory.

This Surrency soil has severe limitations for cultivated crops, hay, and pasture because of wetness.

This soil is generally not suited to the production of pine trees because of ponding or wetness. It may be suited to cypress and hardwood production through natural regeneration. Equipment limitations, seedling mortality, and plant competition are the main concerns in management.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Flooding and ponding are the main limiting factors. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of ponding. See table 8 for more complete information concerning factors that can affect recreational development.

This Surrency soil is in capability subclass VIw and in woodland suitability group 2W.

5—Fuquay fine sand, 0 to 5 percent slopes. This soil is well drained and nearly level to gently undulating. It is on summits and foot slopes of uplands. Individual areas of this soil are irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is dark brown fine sand about 7 inches thick. The subsurface layer is yellowish brown fine sand to a depth of about 37 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish brown sandy loam and sandy clay loam in the upper part and is reticulately mottled red, yellowish brown, and light gray sandy clay loam in the lower part. The subsoil contains 5 to 15 percent plinthite.

Included in mapping are small areas of Bonifay, Dothan, Miccosukee, and Lucy soils. Also included are areas of soils similar to the Fuquay soils but they have slopes of 5 to 8 percent. The included soils make up less than 15 percent of the map unit.

This Fuquay soil has a perched high water table above the subsoil for brief durations during wet periods. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Natural fertility is low.

The natural vegetation is dominantly slash pine, loblolly pine, longleaf pine, live oak, post oak, and dogwood. The understory is native shrubs and grasses including huckleberry, smilax, virginia creeper, and pineland threeawn.

This Fuquay soil has moderate limitations for cultivated crops because of the thick, sandy surface layer. It can be cultivated safely with good farming methods, but droughtiness and rapid leaching of plant nutrients limit the choice of crops and the potential yields of adapted crops. Corn, watermelons, soybeans, peanuts, and tobacco can be grown if properly managed. Row crops need to be planted on the contour in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. For best yields, this soil needs good seedbed preparation, fertilizer, and lime.

The soil has slight limitations for use as pasture and for hay. Coastal bermudagrass and bahiagrass are well adapted and produce well if fertilizer and lime are added to the soil. Controlled grazing is needed to maintain vigorous plants for maximum yields and good cover.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash and longleaf pines are the best trees to plant. Droughtiness of the sandy surface and subsurface is the major limitation.

This soil has moderate limitations for septic tank absorption fields, dwellings with basements, and lawns and landscaping because of slope, permeability, and wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This Fuquay soil has moderate limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface. See table 8 for more complete information concerning factors that can affect recreational development.

This Fuquay soil is in capability subclass IIs and in woodland suitability group 11S.

6—Dothan loamy fine sand, 2 to 5 percent slopes. This soil is well drained and gently undulating. It is on summits and shoulders of uplands. Individual areas of this soil are irregular in shape and range from 5 to 500 acres.

Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil extends to a depth of at least 80 inches. It is yellowish brown fine sandy loam and yellowish brown sandy clay loam to a depth of 49 inches and yellowish brown sandy clay loam that has about 15 percent plinthite to a depth of 62 inches. Below that, the subsoil is sandy clay loam that is reticulately mottled in shades of brown, yellow, red, and gray.

Included in mapping are small areas of Fuquay, Miccosukee, Lucy, and Orangeburg soils. Also included are small areas of soils that have 5 percent or more plinthite above a depth of 24 inches. The included soils make up less than 15 percent of the map unit.

This Dothan soil has a perched high water table above the subsoil for brief durations during wet periods. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is moderately rapid in the surface layer, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

The natural vegetation is mainly slash pine, loblolly pine, longleaf pine, and mixed hardwoods, such as live oak, sweetgum, and dogwood. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn.

This soil has moderate limitations for cultivated crops because of the hazard of erosion. The variety of adapted crops is somewhat limited by occasional wetness, but crops, such as corn and peanuts, are adapted if they are properly managed. Erosion control measures include terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. Crop residue and the soil-improving cover crops need to be left on the ground. Tile drains are needed to maintain good drainage for crops, such as tobacco, that are damaged by the slight wetness. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Dothan soil has slight limitations for use as pasture and for hay. Improved pasture plants, such as clovers, tall fescue, coastal bermudagrass, and improved bahiagrass, are well adapted and produce well when they are properly managed. Fertilizer, lime, and controlled grazing are needed to maintain vigorous plants and a good ground cover.

This soil has high potential productivity for slash and loblolly pines. Plant competition is the main concern in management. Slash pine, loblolly pine, and longleaf pine are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, trench type sanitary landfills, shallow excavations, and dwellings with basements because of wetness and moderately slow permeability. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for playgrounds because of slope. See tables 8 for more complete information concerning factors which can affect recreational development.

This Dothan soil is in capability subclass IIe and in woodland suitability group 11A.

7—Dothan loamy fine sand, 5 to 8 percent slopes, eroded. This soil is well drained and gently rolling. It is on hillsides on uplands. Individual areas of this soil are irregular in shape and range from 3 to 40 acres.

Typically, the surface layer is dark grayish brown loamy fine sand about 6 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of about 16 inches. The subsoil extends to a depth of at least 80 inches. It is brownish yellow sandy clay loam to a depth of 64 inches and mottled brownish yellow, yellow, red, light gray, and strong brown sandy clay loam below that. More than 5 percent plinthite is between depths of 24 and 60 inches.

Included in mapping are small areas of Fuquay and Miccosukee soils. Also included are small areas of soils that have more than 5 percent plinthite at a depth of about 24 inches and soils that have more than 10 percent ironstone in the subsoil. The included soils make up less than 20 percent of the map unit.

This Dothan soil has a perched high water table above the subsoil for brief periods during wet seasons. The available water capacity is low in the surface and subsurface layer and moderate in the subsoil. Permeability is moderately rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

The native vegetation includes longleaf pine, shortleaf pine, loblolly pine, slash pine, live oak, hickory, and white oak. The understory is sassafras, briers, ferns, vines, and pineland threeawn.

This soil has severe limitations for cultivated crops because of erosion (fig. 2). It is only moderately suited to most crops, such as corn, soybeans, and peanuts. The variety of adapted crops is somewhat limited by occasional wetness. Intensive erosion control measures include carefully designed terraces with stabilized outlets, contour cultivation of row crops grown in alternate strips with close-growing crops, crop rotations that include close-growing cover crops, and crop residue left on the land. Tile or open drains are needed to intercept seepage water from high areas. Row crops need to be planted on beds. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Dothan soil has moderate limitations for use as pasture and for hay because the eroded condition of the soil causes problems in establishing the pasture and also reduces yields. Coastal bermudagrass and improved bahiagrass are well adapted and moderate yields are possible if this soil is fertilized and limed. Controlled grazing is needed to maintain vigorous plants for maximum yields and good soil cover. An established and well maintained pasture or hay crop is one of the best uses for this soil.

This soil has high potential productivity for slash pine, loblolly pine, and longleaf pine, which are the best trees to plant on this soil. Plant competition is the main concern in management.

This soil has severe limitations for septic tank absorption fields, and moderate limitations for trench type sanitary landfills, shallow excavations, dwellings with basements, and small commercial buildings mainly because of wetness and slope. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for playgrounds because of slope. See table 8 for more information concerning factors that can affect recreational development.

This Dothan soil is in capability subclass IIIe and in woodland suitability group 11A.

8—Chaires fine sand. This soil is poorly drained and nearly level. It is in broad, level areas on the flatwoods.

Figure 2.—Dothan loamy fine sand, 5 to 8 percent slopes, eroded, is only moderately suitable for cultivated crops. Cover crops are needed on this field to help control erosion.

Individual areas of this soil are irregular in shape and range from 10 to 1,500 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer is white fine sand to a depth of 29 inches. The subsoil extends to a depth of at least 80 inches. It is very dark brown and very dark grayish brown fine sand and loamy fine sand to a depth of 52 inches and light olive gray and light greenish gray fine sandy loam below that.

Included in mapping are small areas of Albany, Chipley, Leon, and Surrency soils. Also included are small areas of soils that are shallower to the subsoil than the Chaires soils, some soils that have a thicker surface layer, and some soils that have limestone at depths between 60 and 80 inches. The included soils make up less than 15 percent of the map unit.

This Chaires soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for 6 months or more in most years. The available water capacity is very low in the surface and subsurface layers, low in the upper part of the subsoil, and moderate in the lower part. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow to slow in the lower part. Natural fertility is low.

The natural vegetation is scattered bluejack, blackjack, laurel oak, water oak, longleaf pine, and sweetgum in the overstory. The understory is sawpalmetto, dwarf blueberry, greenbrier, fetterbush, gallberry, bromegrass, and pineland threeawn.

This soil has severe limitations for cultivated crops because of wetness.

This Chaires soil has severe limitations for use as pasture and for hay. A seasonal high water table and rapid leaching of plant nutrients from the soil limit the choice of plants and reduce potential yields of adapted crops. Intensive management of soil fertility and water is needed for optimum production of pasture and hay.

This soil has moderately high potential productivity for pine trees. Slash pine are the best trees to plant. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Planting trees on beds lowers the effective depth of the high water table (fig. 3).

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of wetness and the sandy surface. See table 8 for information concerning factors that can affect recreational development.

This Chaires soil is in the capability subclass IVw and in woodland suitability group 10W.

9—Leon fine sand. This soil is poorly drained and nearly level. It is in broad, flat areas on the flatwoods. Individual areas of this soil are irregular in shape and range from 15 to 1,500 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 5 inches thick. The subsurface layer is gray and light gray fine sand to a depth of about 21 inches. The subsoil, to a depth of 53 inches, is very dark brown and dark brown fine sand. The material between depths of 53 and 57 inches is grayish brown fine sand. Below that to a depth of 80 inches or more is black fine sand.

Included in mapping are small areas of Chaires, Chipley, Rutlege, and Surrency soils. The included soils make up less than 15 percent of the map unit.

This Leon soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for more than 6 months in most years. The available water capacity is very low in the surface and subsurface layers and low in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. Natural fertility is low.

The natural vegetation is longleaf pine, slash pine, water oak, myrtle, and a thick undergrowth of sawpalmetto, running oak, fetterbush, gallberry, and pineland threeawn.

This soil has severe limitations for cultivated crops because of wetness.

This Leon soil has severe limitations for use as pasture and for hay. A seasonal high water table and rapid leaching of plant nutrients from the soil limit the choice of plants and reduce potential yields of adapted crops. Intensive management of soil fertility and water is needed for optimum production of pasture and hay.

This soil has moderate potential productivity for pine trees, and slash pines are the best trees to plant. Equipment limitations, seedling mortality, windthrow hazard, and plant competition are the main concerns in management. Planting trees on beds lowers the effective depth of the high water table.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness and the sandy surface. See table 8 for information concerning factors that can affect recreational development.

This Leon soil is in capability subclass IVw and in woodland suitability group 8W.

Figure 3.—Chaires fine sand has been bedded for planting pine trees. The seasonal high water table is visible between the beds for 1 to 3 months in most years.

10—Rains fine sandy loam. This soil is poorly drained and nearly level. It is in low areas and poorly defined drainageways on uplands. Individual areas of this soil are irregular in shape and range from 3 to 300 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is black fine sandy loam about 7 inches thick. The subsoil extends to a depth of at least 80 inches. It is gray and light gray sandy clay loam to a depth of 34 inches and gray sandy clay below that. The subsoil has mottles throughout.

Included in mapping are small areas of Pelham and Plummer soils. Also included are some soils that have a thicker A horizon than that of the Rains soil. The included soils make up less than 15 percent of the map unit.

This Rains soil has a seasonal high water table within 12 inches of the surface for about 6 months in most years. This soil is ponded after heavy rainfall. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is rapid in the surface layer and slow in the subsoil. Natural fertility is low.

The natural vegetation consists of loblolly pine, slash pine, sweetgum, and blackgum. The understory is native shrubs and grasses and includes waxmyrtle and inkberry.

This Rains soil has severe limitations for cultivated crops because of wetness.

This soil has severe limitations for use as pasture and for hay. A seasonal high water table limits the choice of plants and reduces potential yields of adapted crops. Intensive water management is needed for optimum production of pasture and hay.

This soil has high potential productivity for pine trees, but the potential is attainable only in areas that have adequate surface drainage. Equipment limitations and seedling mortality are the main concerns in management. Slash pine and loblolly pine are the best trees to plant but only in areas that are adequately drained.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness.

See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness. See table 8 for information concerning factors that can affect recreational development.

This Rains soil is in capability subclass IIIw and in woodland suitability group 10W.

11—Lucy loamy fine sand, 0 to 5 percent slopes. This soil is well drained and nearly level to gently undulating. It is on summits and foot slopes of uplands. Individual areas of this soil are irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is dark grayish brown and brown loamy fine sand about 13 inches thick. The subsurface layer is yellowish brown, strong brown, and yellowish red loamy fine sand to a depth of about 34 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish red fine sandy loam to a depth of 42 inches and red sandy clay loam below that.

Included in mapping are small areas of Albany, Orangeburg, and Troup soils. Also included are areas of soils that have a thicker surface layer. The included soils make up less than 15 percent of the map unit.

This Lucy soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation consists of slash pine, longleaf pine, live oak, post oak, red oak, and dogwood (fig. 4). The understory consists of native shrubs and grasses including huckleberry, southern dewberry, smilax, virginia creeper, American beautyberry, muscadine grape, and sparse pineland threeawn.

This soil has moderate limitations for cultivated crops because of poor soil qualities, but it can be cultivated safely if proper farming methods are used. Droughtiness and rapid leaching of plant nutrients limit the choice of crops and the potential yields of adapted crops. If good management practices are used, such crops as corn, soybeans, peanuts, and tobacco can be grown. Row crops need to be planted on the contour in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. For best yields, this soil requires good seedbed preparation, fertilizer, and lime. Irrigation of some high-value crops, such as tobacco, is generally feasible where irrigation water is readily available. Erosion is a hazard in steeper areas of this soil. Proper management of soil fertility is needed for optimum production of cultivated crops.

This Lucy soil has slight limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted. Proper management of soil fertility is needed for optimum productivity of this soil. Controlled grazing helps to maintain vigorous plants for maximum yields and good cover.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Loblolly and slash pines are the best trees to plant.

This soil has severe limitations for area type sanitary landfills because of seepage, and it has moderate limitations for shallow excavations because cutbanks cave. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for playgrounds because of slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Lucy soil is in capability subclass IIs and in woodland suitability group 11S.

12—Lucy loamy fine sand, 5 to 8 percent slopes. This soil is well drained and gently rolling. It is on back slopes and foot slopes of uplands. Individual areas of this soil are elongated and irregular in shape and range from 3 to 50 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand about 7 inches thick. The subsurface layer is strong brown loamy fine sand to a depth of about 26 inches. The subsoil is red sandy clay loam to a depth of at least 80 inches.

Included in mapping are small areas of Orangeburg and Troup soils. The included soils make up less than 15 percent of the map unit.

This Lucy soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is slash pine, longleaf pine, live oak, post oak, red oak, and dogwood. The understory is native shrubs and grasses including huckleberry, southern dewberry, smilax, virginia creeper, American beautyberry, muscadine grape, yaupon, and sparse pineland threeawn.

This soil has severe limitations for cultivated crops because of poor soil qualities that require special soil-improving measures. Droughtiness and rapid leaching of plant nutrients severely limits the use of this soil for most row crops. Steepness of slope makes cultivation more difficult and increases the hazard of erosion. Cultivated row crops need to be planted in strips on the contour alternating with wider strips of close-growing, soil improving crops. Crop rotations also need to include close-growing crops that remain on the land at least two-

Figure 4.—Many plantations in Jefferson County maintain large areas of scenic open woodlands. This woodland is in an area of Lucy loamy fine sand, 0 to 5 percent slopes.

thirds of the time. Residue of all other crops should also be left on the land. Fertilizer and lime are needed for all crops on this soil.

This Lucy soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted. Steepness of slope increases the hazard of erosion and reduces potential yields. Good stands of grass can be produced by adding fertilizer and lime to this soil. Controlled grazing is needed to maintain plant vigor to provide good protective cover.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash and loblolly pines are the best trees to plant.

This soil has severe limitations for area type sanitary landfills because of seepage. It has moderate limitations for shallow excavations and small commercial buildings because of slope and cutbanks caving. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds because of slope. See table 8 for information concerning factors that affect recreational development.

This Lucy soil is in capability subclass IIIs and in woodland suitability group 11S.

13—Orangeburg sandy loam, 2 to 5 percent slopes. This soil is well drained and gently undulating. It is on summits on uplands. Individual areas of this soil are irregular in shape and range from 3 to 500 acres.

Typically, the surface layer is very dark grayish brown sandy loam about 7 inches thick. The subsoil extends to a depth of at least 80 inches. It is red sandy clay loam in the upper part and red sandy clay in the lower part.

Included in mapping are small areas of Cowarts, Dothan, Lucy, and Troup soils. The included soils make up less than 15 percent of the map unit.

The Orangeburg soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines and mixed hardwoods, such as water oak, red oak, beech, black cherry, sweetgum, and hickory. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas of this soil have been cleared and are used for crops or pasture.

This Orangeburg soil has moderate limitations for cultivated crops because of the hazard of erosion. A wide variety of cultivated crops are well adapted, and such crops as corn and soybeans grow well if properly managed. Moderate erosion control practices are needed that include a system of well designed terraces that have stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. Soil-improving cover crops and all crop residue should be left on the soil. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Orangeburg soil has slight limitations for use as pasture and for hay. Tall fescue, coastal bermudagrass, and improved bahiagrass are well adapted. Clovers and other legumes are also adapted and grow well if properly managed. Fertilizer, lime, and controlled grazing help to maintain vigorous plants for highest yields and good soil cover.

This soil has high potential productivity for pine trees. Plant competition is the main concern in management. Slash and loblolly pines are the best trees to plant.

This soil has only slight limitations for most urban uses including septic tank absorption fields. It has moderate limitations for playgrounds because of slope. See tables 8, 10, and 11 for more complete information concerning factors that can affect urban and recreational development.

The Orangeburg soil is in capability subclass IIe and in woodland suitability group 9A.

14—Orangeburg sandy loam, 5 to 8 percent slopes, eroded. This soil is well drained and gently rolling. It is on shoulders and back slopes of uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 200 acres.

Typically, the surface layer is dark grayish brown and dark brown sandy loam about 9 inches thick. The subsurface layer is strong brown sandy clay loam to a depth of about 16 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish red sandy clay loam to a depth of about 34 inches and red sandy clay below that.

Included in mapping are small areas of Cowarts, Dothan, Lucy, and Troup soils. The included soils make up less than 15 percent of the map unit.

This Orangeburg soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate in the subsurface layer and the subsoil. Permeability is moderately rapid in the surface and moderate in the subsurface layer and the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines and mixed hardwoods, such as water oak, red oak, beech, black cherry, sweetgum, and hickory. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas of this soil have been cleared and are used for crops or pasture.

This soil has severe limitations for cultivated crops because of the hazard of erosion. A wide variety of cultivated crops are well adapted. Corn and soybeans grow well if properly managed. Intensive erosion control practices are needed that include a system of well designed terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops. Soil-improving cover crops and all crop residue should be left on the soil or plowed under. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Orangeburg soil has moderate limitations for use as pasture and for hay. Because of the eroded condition of the soil, pastures are hard to establish and yields are reduced. Tall fescue, coastal bermudagrass, and improved bahiagrass are well adapted. Clovers and other legumes are also adapted and grow well if properly managed. This soil requires fertilizer and lime, and controlled grazing is needed to maintain vigorous plants for highest yields and good soil cover. An established and well maintained pasture or hay crop is one of the best uses for this soil.

This soil has high potential productivity for pine trees. Plant competition is the main concern in management. Slash and loblolly pines are the best trees to plant.

This soil has moderate limitations for small commercial buildings and playgrounds because of slope. It has slight limitations for septic tank absorption fields. See tables 8, 10, and 11 for more urban and recreational development information.

This Orangeburg soil is in capability subclass IIIe and in woodland suitability group 9A.

15—Orangeburg sandy loam, 8 to 12 percent slopes, eroded. This soil is well drained and rolling. It is on shoulders and back slopes of uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 80 acres.

Typically, the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsoil extends to a depth of at least 80 inches. It is yellowish red sandy clay loam to a depth of about 26 inches and red sandy clay loam below that.

Included in mapping are small areas of Dothan, Cowarts, Lucy, and Troup soils. The included soils make up less than 15 percent of the map unit.

This Orangeburg soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines and mixed hardwoods, such as water oak, red oak, beech, black cherry, sweetgum, and hickory. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Some areas of this soil have been cleared and are used for crops or pasture.

This Orangeburg soil has severe limitations for cultivated crops because of the hazard of erosion. The slopes are too steep to be effectively terraced, and erosion control measures are limited to the use of vegetative cover. When row crops are grown, they need to be planted in narrow strips on the contour with alternating wider strips of close-growing vegetation. Crop rotations also need to include close-growing vegetation that remains on the soil. All crop residue should also be left on the land. This soil needs lime and fertilizers for best yields of row crops and close-growing crops.

This soil has moderate limitations for use as pasture and for hay. Because of the eroded condition of the soil, pastures are hard to establish and yields are reduced. Tall fescue, coastal bermudagrass, and improved bahiagrass are well suited. Fertilizer, lime, and controlled grazing are needed for best yields and to assure a complete vegetative cover to prevent severe erosion. An established and well maintained pasture or hay crop is one of the best uses for this soil.

This soil has high potential productivity for pine trees. Plant competition is the main concern in management. Slash and loblolly pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, local roads and streets, and lawns and landscaping. It has severe limitations for small commercial buildings. Slope is the main limiting factor. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for camp areas, picnic areas, and golf fairways and severe limitations for playgrounds because of the slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Orangeburg soil is in capability subclass IVe and in woodland suitability group 9A.

16—Blanton fine sand, 0 to 5 percent slopes. This soil is moderately well drained and nearly level to gently sloping. It is on low knolls, foot slopes, and toe slopes on uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 100 acres.

Typically, the surface layer is very dark grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 63 inches. It is yellowish brown, light yellowish brown, brownish yellow, and very pale brown. The subsoil is sandy clay loam and sandy clay to a depth of at least 80 inches. To a depth of 74 inches, it is brownish yellow with strong brown mottles, and below that it is light gray with brownish yellow, strong brown, and yellowish red mottles.

Included in mapping are small areas of Albany, Chipley, Leefield, and Troup soils. The included soils make up less than 15 percent of the map unit.

This Blanton soil has a perched high water table above the subsoil during wet seasons, but it is generally at a depth of more than 72 inches. The available water capacity is very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is dominantly slash pine, loblolly pine, longleaf pine, bluejack oak, red oak, and live oak with an understory of dwarf huckleberry and pineland threeawn.

This soil has severe limitations for most cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of adapted crops. Row crops need to be planted in strips on the contour with alternating strips of close-growing crops. Crop rotations also need to include close-growing cover crops. Soil-improving cover crops and all crop residue should be left of the ground. Irrigation of high-value crops is generally feasible where water is readily available.

This Blanton soil has moderate limitations for use as pasture and for hay. Deep-rooting coastal bermudagrass and improved bahiagrass are well adapted but yields are reduced by periodic droughts. Regular applications of fertilizer and lime are needed. Grazing needs to be controlled to maintain plant vigor and a good ground cover.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash pines are the best trees to plant.

This Blanton soil has moderate limitations for septic tank absorption fields, trench type sanitary landfills, dwellings with basements, and lawns and landscaping. It has severe limitations for area type sanitary landfills and shallow excavations. Wetness and the sandy surface are some of the limiting factors affecting these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, and paths and trails because of the sandy surface and for golf fairways because of droughtiness. It has moderate limitations for playgrounds because of the slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Blanton soil is in capability subclass IIIs and in woodland suitability group 11S.

17—Troup fine sand, 0 to 5 percent slopes. This soil is well drained and nearly level to gently sloping. It is on summits and foot slopes of uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 50 acres.

Typically, the surface layer is dark brown fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 43 inches. It is brown to a depth of 21 inches and strong brown below that. The subsoil is red fine sandy loam and sandy clay loam to a depth of at least 80 inches.

Included in mapping are small areas of Albany, Blanton, and Lucy soils. The included soils make up less than 15 percent of the map unit.

This Troup soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is dominantly slash pine, loblolly pine, longleaf pine, water oak, red oak, beech, black cherry, hickory, magnolia, and sweetgum. The understory is native shrubs and grasses including huckleberry, smilax, and sparse pineland threeawn.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of adapted crops. Row crops need to be planted on the contour in alternating strips with close-growing, soil-improving crops. Crop rotations also need to include close-growing, soil-improving crops. This soil needs lime and fertilizer for all crops. Irrigation of high-value crops, such as watermelons and tobacco, is generally feasible where irrigation water is readily available.

This Troup soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and improved bahiagrass, are well adapted. They grow well and produce good ground cover when lime and fertilizer are added to the soil. Controlled grazing is needed to maintain vigorous plants for maximum yields. Yields are greatly reduced by extended droughts.

This soil has moderately high potential productivity for pine trees. Equipment limitations and seedling mortality are the main concerns in management. Slash and loblolly pines are the best trees to plant.

This soil has severe limitations for shallow excavation and area type sanitary landfills and moderate limitations for trench type sanitary landfills, lawns and landscaping, because cutbanks cave and the surface is sandy. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface. See table 8 for more complete information concerning factors that can affect recreational development.

This Troup soil is in capability subclass IIIs and in woodland suitability group 8S.

18—Troup fine sand, 5 to 8 percent slopes. This soil is well drained and moderately sloping. It is on back slopes and foot slopes of uplands. Individual areas of this soil are elongated and range from 5 to 40 acres.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of about 50 inches. It is yellowish brown to a depth of 18 inches, brownish yellow to a depth of 28 inches, and yellow with pockets of white uncoated sand grains below that. The subsoil is yellowish brown sandy clay loam to a depth of at least 80 inches.

Included in mapping are small areas of Albany, Blanton, Bonifay, and Lucy soils. Also included are small areas of Troup soils that have slopes of 0 to 5 percent. The included soils make up less than 15 percent of the map unit.

This Troup soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is dominantly slash pine, loblolly pine, red oak, water oak, beech, hickory, black cherry, magnolia, and sweetgum. The understory is smilax, huckleberry, and sparse pineland threeawn.

This soil has severe limitations for crops. Droughtiness, steepness of slope, and rapid leaching of plant nutrients from the soil limit the choice of plants and reduce potential yields of adapted crops. Row crops need to be planted on the contour in alternating strips with close-growing, soil-improving crops. Crop rotations also need to include close-growing, soil-improving crops that remain on the land at least two-thirds of the time. Lime and fertilizer are needed for all crops. Irrigation of high-value crops, such as watermelons and tobacco, is generally feasible where irrigation water is readily available.

This Troup soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and improved bahiagrass, are well adapted. They grow well and produce good ground cover if lime and fertilizer are added to the soil. Controlled grazing is needed to maintain vigorous plants for maximum yields. Yields are greatly reduced by extended droughts. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for pine trees. Equipment limitations and seedling mortality are the main concerns in management. Slash and loblolly pines are the best trees to plant.

This soil has severe limitations for area type sanitary landfills and shallow excavations. It has moderate limitations for trench type sanitary landfills, small commercial buildings, and lawns and landscaping. Cutbanks caving and the sandy surface are some of the limiting factors. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface. See table 8 for more complete information concerning factors that can affect recreational development.

This Troup soil is in capability subclass IVs and in woodland suitability group 8S.

19—Bibb loamy sand, frequently flooded. This soil is poorly drained and nearly level. It is in drainageways and on flood plains that are subject to frequent flooding. Individual areas of this soil are elongated or irregular in shape and range from 20 to 500 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark gray loamy sand about 3 inches thick and dark grayish brown loamy sand to a depth of about 10 inches. The underlying material to a depth of 60 inches is dark grayish brown and grayish brown sandy loam that has yellowish brown mottles. To a depth of at least 80 inches, it is stratified light brownish gray loamy sand and sand that has yellowish brown mottles.

Included in mapping are small areas of Albany, Leefield, Pelham, and Plummer soils. The included soils make up less than 15 percent of the map unit.

This Bibb soil has a seasonal high water table within 12 inches of the surface for 6 months or more in most years. Flooding is common after heavy rainfalls. The available water capacity is low in the surface layer, moderate in the upper part of the underlying material, and low in the lower part. Permeability is rapid in the surface layer and moderate in the underlying material. Natural fertility is low.

The natural vegetation is water-tolerant species of bay, gum, beech, cypress, and oak. The understory is waxmyrtle, titi, and water-tolerant shrubs. Most areas of this soil are in native vegetation. In some of the more accessible areas, marketable trees have been cut.

This Bibb soil has severe limitations for cultivated crops, hay, and pasture because of flooding.

This soil has high potential productivity for loblolly pine, and they are the best trees to plant. Equipment limitations and seedling mortality are the main concerns in management.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Flooding and wetness are the main limiting factors. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness. See table 8 for more complete information concerning factors that can affect recreational development.

This Bibb soil is in capability subclass Vw and in woodland suitability group 9W.

20—Albany sand. This soil is somewhat poorly drained and nearly level. It is on low knolls on uplands and flatwoods. Individual areas of this soil are irregular in shape and range from 5 to 80 acres.

Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer is sand to a depth of 55 inches. It is brown and pale brown in the upper part and white in the lower part. It has mottles in shades of brown and yellow below a depth of 21 inches. The subsoil extends to a depth of at least 80 inches. It is very pale brown sandy loam to a depth of 60 inches and light brownish gray sandy clay loam below that. The subsoil has mottles in shades of brown, yellow, and gray.

Included in mapping are small areas of Blanton, Leefield, Pelham, and Plummer soils. The included soils make up less than 15 percent of the map unit.

This Albany soil has a seasonal high water table within a depth of 12 to 30 inches for 2 to 4 months in most years. The available water capacity is very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is loblolly, longleaf, and slash pines and mixed hardwoods including water oak, red oak, sweetgum, and hickory. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn.

This Albany soil has severe limitations for cultivated crops because of periodic wetness and droughtiness in the root zone. The number of adapted crops is very limited unless intensive water control measures are used. With adequate water control, corn, soybeans, and peanuts are moderately well adapted. Good management measures include close-growing, soil-improving crops in rotation with row crops. The close-growing crops should be on the land at least two-thirds of the time. Fertilizer and lime are needed for best yields.

This soil has moderate limitations for use as pasture and for hay. It requires good management for best yields. Coastal bermudagrass, bahiagrass, and clovers are well adapted. The soil responds well to fertilizers and lime. Simple drainage can remove excess internal water in wet seasons. Grazing needs to be controlled to maintain vigorous plants for best yields.

This soil has high potential productivity for slash, loblolly, and longleaf pines. Moderate equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash pines and loblolly pines are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings with basements, small commercial buildings, and lawns and landscaping. It has moderate limitations for dwellings without basements and local roads and streets. Wetness is the main limiting factor. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface and wetness. It has severe limitations for golf fairways because of droughtiness. See table 8 for more complete information concerning factors that can affect recreational development.

This Albany soil is in capability subclass IIIw and in woodland suitability group 10W.

21—Bonifay fine sand, 0 to 5 percent slopes. This soil is well drained and nearly level to gently undulating. It is on summits and foot slopes of uplands. Individual areas of this soil are irregular in shape and range from 5 to 100 acres.

Typically, the surface layer is dark brown fine sand about 8 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 48 inches. The subsoil extends to a depth of at least 80 inches. To a depth of 59 inches, it is yellowish brown fine sandy loam and sandy clay loam that has red plinthite. Below that, it is sandy clay that is reticulately mottled in shades of red, white, and brown.

Included in mapping are small areas of Blanton, Fuquay, Albany, and Troup soils. The included soils make up less than 15 percent of the map unit.

This Bonifay soil has a perched high water table above the subsoil for brief periods during the wet season. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate to moderately slow in the subsoil. Natural fertility is low.

The natural vegetation on this soil is mainly oaks, slash pine, and hickory. The undergrowth is dogwood, brackenfern, switchgrass, and panicum.

This soil has severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the choice of plants and reduce potential yields of adapted crops. Row crops need to be planted on the contour in alternating strips with close-growing, soil-improving crops. Crop rotations also need to include close-growing crops that remain on the land at least two-thirds of the time. Lime and fertilizer are needed for all crops. Irrigation of high-value crops, such as watermelons and tobacco, is generally feasible where irrigation water is readily available.

This Bonifay soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as bermudagrass and bahiagrass, are well adapted. They grow well and produce good ground cover if lime and fertilizer are added to the soil. Controlled grazing is needed to maintain vigorous plants for maximum yields. Yields are occasionally greatly reduced by extended severe drought.

This soil has moderately high potential productivity for pine trees. Equipment limitations, plant competition, and seedling mortality are the main concern in management. Slash pines are the best trees to plant.

This soil has severe limitations for shallow excavations, and lawns and landscaping because of cutbanks caving and droughtiness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and droughtiness. See table 8 for more complete information concerning factors that can affect recreational development.

This Bonifay soil is in capability subclass IIIs and in woodland suitability group 10S.

22—Plummer fine sand. This soil is poorly drained and nearly level. It is in poorly defined drainageways on uplands and flatwoods. Individual areas of this soil are elongated or irregular in shape and range from 20 to 800 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 69 inches. It is grayish brown to a depth of 18 inches, gray to a depth of 43 inches, and light gray below that. The subsoil extends to a depth of at least 80 inches. It is light gray sandy loam in the upper part and light gray sandy clay loam in the lower part. The subsoil has few to common mottles in shades of yellow and brown.

Included in mapping are small areas of Leefield, Pelham, Sapelo, and Surrency soils. The included soils make up less than 15 percent of the map unit.

This Plummer soil has a seasonal high water table at the surface or within 15 inches of the surface for 3 to 6 months in most years. The available water capacity is low to very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation on this soil is mainly water oak, loblolly pine, slash pine, sweetgum, and blackgum. The understory is inkberry, waxmyrtle, ferns, and pineland threeawn.

This soil has severe limitations for cultivated crops because of wetness.

This Plummer soil has severe limitations for use as pasture and for hay, and it is poorly suited to most improved grasses and legumes. With good management, poor to moderate yields of pasture grasses can be produced. Good management includes water control, controlled grazing, and applications of fertilizer and lime.

This soil has high potential productivity for pine trees but only in areas that have adequate surface drainage. Equipment limitations, seedling mortality, and plant competition are concerns in management. Slash and loblolly pines are the best trees to plant. Planting the trees on beds lowers the effective depth of the water table.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and wetness. See table 8 for more complete information concerning factors that can affect recreational development.

This Plummer soil is in capability subclass IVw and in woodland suitability group 11W.

23—Pelham fine sand. This soil is poorly drained and nearly level. It is on broad flats, and in drainageways on uplands and flatwoods. Individual areas of this soil are irregular or elongated in shape and range from 5 to 600 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer is dark grayish brown and grayish brown fine sand to a depth of about 34 inches. The subsoil extends to a depth of at least 80 inches. To a depth of 49 inches, it is light gray fine sandy loam that has strong brown mottles, and below that it is light gray sandy clay loam that has strong brown and red mottles.

Included in mapping are small areas of Leefield, Plummer, Rains, and Surrency soils. The included soils make up less than 15 percent of the map unit.

This Pelham soil has a seasonal high water table within 15 inches of the surface for 3 to 6 months in most years. This soil is subject to brief flooding after heavy rains. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is slash pine, loblolly pine, sweetgum, blackgum, and water oak. The understory includes greenbriers, waxmyrtle, and inkberry.

This soil has severe limitations for cultivated crops because of wetness.

This Pelham soil has severe limitations for use as pasture and for hay. Tall fescue, coastal bermudagrass, and bahiagrass are best adapted. Good management includes water control to remove excess surface water and applications of fertilizer and lime. Grazing needs to be controlled to prevent overgrazing and reduction of the vitality of the plants.

This soil has high potential productivity for pine trees, but adequate surface drainage is needed before full potential productivity can be reached. Equipment limitations, seedling mortality, and plant competition are the main concern in management. Slash and loblolly pines are the best trees to plant, but tree planting is feasible only if this soil is adequately drained.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness is the main limiting factor for most of these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and wetness. See tables 8 for more complete information concerning factors that can affect recreational development.

This Pelham soil is in capability subclass Vw and in woodland suitability group 11W.

24—Fuquay fine sand, 5 to 8 percent slopes. This soil is well drained and gently rolling. It is on summits and back slopes of uplands. Individual areas of this soil are irregular or elongated in shape and range from 5 to 50 acres.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 19 inches and brownish yellow fine sand to a depth of 35 inches. The subsoil is sandy clay loam to a depth of at least 80 inches. It is strong brown to a depth of 64 inches and mottled reddish yellow, light gray, brownish yellow, and red below that. The subsoil contains about 10 percent plinthite.

Included in mapping are small areas of Bonifay, Dothan, Lucy, and Orangeburg soils. The included soils make up less than 15 percent of the map unit.

This Fuquay soil has a perched high water table above the lower part of the subsoil for brief durations during wet periods. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part. Natural fertility is low.

The natural vegetation is dominantly slash and loblolly pines and water and red oaks. The understory includes huckleberry, smilax, and pineland threeawn.

This Fuquay soil has severe limitations for cultivated crops and requires special soil-improving practices. Droughtiness and rapid leaching of plant nutrients severely limits the use of this soil for most row crops. Because of steepness of slopes, cultivation is more difficult and the hazard of erosion is increased. Cultivated row crops need to be planted in strips on the contour alternating with wider strips of close-growing cover crops. Crop rotations also need to include close-growing crops that remain on the land at least two-thirds of the time. Fertilizer and lime should be added according to the need for the crop selected for planting. Soil-improving cover crops and residue of all crops should be left on the land.

This soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted. Steepness of slope increases the hazard of erosion and reduces the potential yields. Good stands of grass can be produced by adding fertilizer and lime. Controlled grazing permits the plants to maintain their vigor and provide good land cover. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash and loblolly pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, dwellings with basements, small commercial buildings, and lawns and landscaping because of slope and the moderate permeability. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface and slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Fuquay soil is in capability subclass IIIs and in woodland suitability group 8S.

25—Pits. This miscellaneous area consists of open excavations from which soil and geologic material have been removed. This material is used for construction work, roadbeds, and fill. The pits range from 2 to 100 acres and are 3 to 30 feet deep. They are throughout the county.

26—Sapelo fine sand. This soil is poorly drained and nearly level. It is on the flatwoods. Individual areas of this soil are irregular in shape and range from 5 to 200 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 3 inches thick. The subsurface layer is gray fine sand to a depth of about 10 inches. The upper part of the subsoil is loamy fine sand to a depth of about 19 inches. It is dark reddish brown in the upper part and dark brown in the lower part. The dark color is organic matter that coats the sand grains. Beneath this part of the subsoil is a layer of light gray sand that extends to a depth of about 54 inches. It has mottles in shades of brown and yellow. The lower part of the subsoil is light gray and light brownish gray sandy loam and sandy clay loam to a depth of at least 80 inches.

Included in mapping are small areas of Albany, Chipley, Leon, and Mascotte soils. The included soils make up less than 15 percent of the map unit.

This Sapelo soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for 6 months or more in most years. The available water capacity is very low to low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation consists dominantly of loblolly pine, slash pine, longleaf pine, live oak, and water oak. The understory is sawpalmetto, fetterbush, gallberry, and pineland threeawn.

This Sapelo soil has severe limitations for cultivated crops because of wetness.

This soil has severe limitations for use as pasture and for hay. Coastal bermudagrass, improved bahiagrass, and several legumes are adapted. Water control measures are needed to remove excess water during heavy rains. Regular applications of fertilizer and lime are needed. Grazing needs to be controlled to maintain vigorous plants for best yields.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management.

Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, lawns and landscaping, and golf fairways because of wetness. See tables 10 and 11 for more information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of the sandy surface and wetness. See table 8 for information concerning factors that can affect recreational development.

This Sapelo soil is in capability subclass IVw and in woodland suitability group 7W.

28—Alpin fine sand, 0 to 5 percent slopes. This soil is excessively drained and nearly level to gently undulating. It is on summits, shoulders, and back slopes of uplands. Individual areas of this soil are irregular in shape and range from 5 to 200 acres.

Typically, the surface layer is dark grayish brown fine sand about 4 inches thick. The subsurface layer, to a depth of about 47 inches, is fine sand. It is yellowish brown to a depth of 20 inches, brownish yellow to a depth of 40 inches, and yellow below that. The underlying layer to a depth of at least 80 inches is very pale brown fine sand that has thin, strong brown loamy fine sand lamellae 1 to 2 centimeters thick.

Included in mapping are small areas of Blanton, Lakeland, and Ortega soils. A few areas of Alpin soil that has slopes ranging to about 12 percent are also included. The included soils make up less than 15 percent of the map unit.

This Alpin soil does not have a high water table within a depth of 80 inches. The available water capacity is low to very low throughout. Permeability is moderately rapid in the surface layer, rapid in the subsurface layer, and moderately rapid in the underlying layer. Natural fertility is low.

The natural vegetation includes longleaf pine, turkey oak, bluejack oak, post oak, and blackjack oak. The understory is honeysuckle, pineland threeawn, and running oak.

This Alpin soil has severe limitations for cultivated crops, and intensive soil management practices are needed if the soil is cultivated. Droughtiness and rapid leaching of plant nutrients reduce the variety and potential yields of adapted crops. Row crops need to be planted in strips on the contour alternating with strips of close-growing crops. Crop rotations also need to include close-growing plants that remain on the land at least three-fourths of the time. Only a few crops produce good yields without irrigation, but irrigation of crops is generally feasible where irrigation water is readily available.

This soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted, but yields are reduced by periodic droughts. Regular applications of fertilizer and lime are needed. Grazing needs to be controlled to permit plants to maintain vigor for best yields.

This soil has moderately high potential productivity for longleaf, slash, and loblolly pines. Equipment limitations and seedling mortality are the main concerns in management. Slash pines or sand pines are the best trees to plant.

This soil has severe limitations for sanitary landfills, shallow excavations, and lawns and landscaping because of seepage and the sandy surface. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and droughtiness. See table 8 for more complete information concerning factors that can affect recreational development.

This Alpin soil is in capability subclass IVs and in woodland suitability group 8S.

30—Pamlico-Dorovan mucks. The Pamlico and Dorovan soils are very poorly drained and nearly level. The individual areas of these soils are too mixed to conform to the scale used for maps in the back of this publication. These soils are on the flatwoods, along some flood plains, and along the edges of gently sloping to sloping uplands. Individual areas are irregular in shape and range from 20 to 200 acres. Slopes range from 0 to 1 percent.

Pamlico muck makes up about 40 to 60 percent of the map unit. Typically, this soil is very dark brown muck to a depth of about 4 inches and black muck to a depth of 27 inches. The underlying material is dark grayish brown sand to a depth of at least 80 inches.

Pamlico soils have a high water table within a depth of 15 inches throughout most years and at or above the surface for 5 to 8 months in some years. The available water capacity is very high in the organic layers and low in the underlying material. Permeability is moderate in the organic layers and rapid in the underlying material.

Dorovan muck makes up about 20 to 50 percent of the map unit. Typically, this soil is very dark brown muck to a depth of about 4 inches and black and dark grayish brown muck to a depth of about 65 inches. The underlying material is dark grayish brown sand to a depth of at least 80 inches.

Dorovan soils have a high water table within a depth of 10 inches throughout most years and at or above the surface for 5 to 8 months in some years. Permeability is moderate, and the available water capacity is very high. Natural fertility is low.

Included in mapping are small areas of Pelham, Plummer, Surrency, Plummer flooded, and Chaires depressional soils. The included soils make up less than 25 percent of the map unit.

The natural vegetation is mainly cypress and an understory of ferns, various shrubs, and vines.

The Pamlico and Dorovan soils have severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

These soils, under natural conditions, are not suitable for pine tree production.

The Pamlico and Dorovan soils have severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of ponding. See tables 10 and 11 for most complete information concerning factors that can affect urban development.

These soils have severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of ponding and excess humus. See table 8 for more complete information concerning factors that can affect recreational development.

The Pamlico and Dorovan soils are in capability subclass IVw and in woodland suitability group 7W.

31—Faceville fine sandy loam, 2 to 5 percent slopes. This soil is well drained and gently undulating. It is on summits and back slopes of uplands. Individual areas of this soil are irregular in shape and range from 5 to 1,500 acres.

Typically, the surface layer is brown fine sandy loam about 14 inches thick. The subsoil is red and dark red sandy clay to a depth of at least 80 inches. It has mottles in shades of yellow and brown between depths of 20 and 80 inches.

Included in mapping are small areas of Dothan, Fuquay, Lucy, and Orangeburg soils. The included soils make up less than 15 percent of the map unit.

This Faceville soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate to high in the subsoil. Permeability is rapid in the surface layer and moderate in the subsoil. Natural fertility is low.

The natural vegetation includes longleaf pine, loblolly pine, slash pine, red oak, hickory, beech, black cherry, and water oak. The understory includes briers, ferns, sassafras, dogwood, and pineland threeawn.

This soil has moderate limitations for cultivated crops because of the hazard of erosion, but a wide variety of cultivated crops is well adapted (fig. 5). Corn and soybeans grow well if properly managed. Moderate erosion control measures are needed. These measures include a system of well designed terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half of the time. Soil-improving cover crops and all crop residue should be left on the soil. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Faceville soil has slight limitations for use as pasture and for hay. Coastal bermudagrass and improved bahiagrass are well adapted. Clovers and other legumes are also adapted and grow well if properly managed. Fertilizer, lime, and controlled grazing are needed to maintain vigorous plants for highest yields and good soil cover.

This soil has moderately high potential productivity for pine trees. There are no significant limitations or restrictions for woodland use and management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, trench type sanitary landfills, shallow excavation, and local roads and streets because of the clayey subsoil and moderate permeability. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for playgrounds because of slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Faceville soil is in capability subclass IIe and in woodland suitability group 8A.

32—Faceville fine sandy loam, 5 to 8 percent slopes, eroded. This soil is well drained and gently rolling. It is on shoulders and back slopes of uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 80 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsoil is sandy clay to a depth of at least 80 inches. It is yellowish red to a depth of 26 inches, red to a depth of 40 inches, and below that it is yellowish red with mottles in shades of white and brown.

Included in mapping are small areas of Dothan, Lucy, and Orangeburg soils. Also included are small areas of soils that are less eroded than this Faceville soil and some soils that have 5 to 15 percent ironstone nodules on the surface. The included soils make up less than 15 percent of the map unit.

This Faceville soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate to high in the subsoil. Permeability is rapid in the surface layer and moderate in the subsoil. Natural fertility is low.

The natural vegetation includes longleaf pine, loblolly pine, slash pine, red oak, hickory, and water oak. The understory includes sassafras, briers, ferns, vines, and pineland threeawn.

This soil has severe limitations for cultivated crops because of the hazard of erosion and the eroded condition of the soil, but it is moderately suited to a wide

Figure 5.—Small cultivated fields, such as this one on Faceville fine sandy loam, 2 to 5 percent slopes, are common on plantations in Jefferson County.

variety of crops. Corn and soybeans grow well if properly managed. Intensive erosion control measures are needed. These measures include a system of well designed terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least two-thirds of the time. Soil-improving cover crops and all crop residue should be left on the soil. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Faceville soil has moderate limitations for use as pasture and for hay. Because of the eroded condition of the soil, pastures are hard to establish and yields are reduced. Coastal bermudagrass and improved bahiagrass are well adapted. Clovers and legumes are also adapted and grow well if properly managed. Fertilizer, lime, and controlled grazing are needed to maintain vigorous plants for highest yields and good soil cover. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for pine trees. There are no significant limitations or restrictions for woodland use and management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, trench type sanitary landfills, shallow excavations, small commercial buildings, and local roads and streets (fig. 6) because of the slope and clayey subsoil. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds because of the slope. See table 8 for information concerning factors that can affect recreational development.

This Faceville soil is in capability subclass IIIe and in woodland suitability group 8A.

33—Leefield fine sand. This soil is somewhat poorly drained and nearly level to gently sloping. It is in drainageways and on low knolls and foot slopes on uplands. Individual areas of this soil are irregular in shape and range from 3 to 100 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of about 32 inches. It is pale yellow and yellow to a depth of 29 inches, and below that it is light yellowish brown with yellowish brown and gray mottles.

Figure 6.—Scenic rural dirt roads are common on Faceville fine sandy loam, 5 to 8 percent slopes, eroded. These roads are easily traveled in dry weather, but become difficult for standard vehicles during periods of extended rainfall.

The subsoil extends to a depth of at least 80 inches. To a depth of 38 inches, it is light yellowish brown sandy loam that has brown and gray mottles. To a depth of 63 inches, the subsoil is light gray sandy clay loam that has yellowish brown mottles. Below that, it is reticulately mottled light gray, yellow, yellowish brown, and strong brown sandy clay loam.

Included in mapping are small areas of Albany, Blanton, Lynchburg, and Pelham soils. These soils make up less than 15 percent of the map unit.

This Leefield soil has a seasonal high water table at a depth of 18 to 30 inches for 2 to 4 months in most years. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

The natural vegetation includes red oak, water oak, slash pine, loblolly pine, and longleaf pine. Honeysuckle, waxmyrtle, greenbrier, and sawpalmetto dominate the understory.

This soil has moderate limitations for cultivated crops because of wetness. It is suited to some cultivated crops, but the variety is limited by the high water table. Corn and soybeans are adapted only if the soil is properly drained. Tile drains or open ditches are needed to protect crops from wetness. Row crops need to be planted in rotation with cover crops that remain on the land at least half the time. For best yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Leefield soil has slight limitations for use as pasture and for hay. Coastal bermudagrass and bahiagrass grow well with good management. White clovers and other legumes are moderately adapted.

Fertilizer, lime, and carefully controlled grazing are needed to maintain plant vigor for best yields.

This soil has moderately high potential productivity for pine trees. The main concerns in management are equipment limitations, seedling mortality, and plant competition. Loblolly, slash, and longleaf pines are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, and dwellings with basements. It has moderate limitations for dwellings without basements, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness is the main limiting factor for most uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface. See tables 8 for more complete information concerning factors that can affect recreational development.

This Leefield soil is in capability subclass IIw and in woodland suitability group 8W.

34—Lakeland sand, 0 to 5 percent slopes. This soil is excessively drained and nearly level to gently sloping. It is on summits of uplands. Individual areas of this soil are irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is dark grayish brown sand about 8 inches thick. The underlying material is brown, dark yellowish brown, and yellowish brown sand to a depth of 40 inches, and to a depth of at least 80 inches, it is brownish yellow fine sand that has pockets of white uncoated sand grains.

Included in mapping are small areas of Alpin, Blanton, Chipley, and Ortega soils. The included soils make up less than 15 percent of the map unit.

This Lakeland soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and the underlying material. Permeability is rapid throughout. Natural fertility is low.

The natural vegetation includes turkey oak, longleaf pine, blackjack oak, and post oak. The understory includes pineland threeawn and scattered wild lupine.

This soil has severe limitations for cultivated crops because of its sandy texture. Intensive soil management practices are needed if this soil is cultivated. Droughtiness and rapid leaching of plant nutrients reduce the variety and potential yields of adapted crops. Row crops need to be planted on the contour in alternating strips with close-growing crops. Crop rotations need to include close-growing plants that remain on the land at least three-fourths of the time.

This Lakeland soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted, but yields are reduced by periodic droughts. Regular applications of fertilizer and lime are needed. Grazing needs to be controlled to permit plants to maintain vigor for best yields. Intensive management of soil fertility and water is needed for optimum production of pasture and hay.

This soil has moderately high potential productivity for pine trees. Seedling mortality and equipment limitations are the major concerns in management. Slash pines are the best trees to plant.

This soil has severe limitations for sanitary landfills, shallow excavations, and lawns and landscaping mainly because of the sandy texture and seepage. See tables 10 and 11 for more complete information concerning factors that can affect recreational development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of the sandy surface. See table 8 for more information concerning factors that can affect recreational development.

This Lakeland soil is in capability subclass IVs and in woodland suitability group 10S.

35—Rutlege fine sand. This soil is very poorly drained and nearly level. It is in shallow depressions and natural drainageways on uplands and flatwoods. Individual areas of this soil are irregular in shape and range from 10 to 150 acres. Slopes are less than 1 percent.

Typically, the surface layer is fine sand 12 inches thick. It is black to a depth of about 7 inches and very dark gray below that. The underlying material is fine sand to a depth of at least 80 inches. It is dark grayish brown and grayish brown to a depth of about 39 inches, light brownish gray to a depth of about 43 inches, and light gray below that. It has mottles in shades of brown and gray throughout.

Included in mapping are small areas of Plummer, Pelham, and Surrency soils. The included soils make up less than 15 percent of the map unit.

This Rutlege soil has a high water table above or near the surface for about 4 to 6 months of the year. It is subject to ponding after heavy rainfall. The available water capacity is low, and permeability is rapid. Natural fertility is low.

The natural vegetation in many areas of this soil is sweetbay, blackgum, and pond cypress. Some areas do not have trees, and the natural vegetation is pitcherplants, sedges, and beak rushes.

This soil has severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

This Rutlege soil is generally not suited to the production of pine trees because of ponding or extended wetness. It can be suited to cypress and hardwood production through natural regeneration. Equipment limitations, seedling mortality, and plant competition are concerns in management.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness and ponding. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and ponding. See table 8 for more complete information concerning factors that can affect recreational development.

This Rutlege soil is in capability subclass VIw and in woodland suitability group 2W.

36—Lynchburg loamy fine sand. This soil is somewhat poorly drained and nearly level. It is in drainageways and on foot slopes on uplands. Individual areas of this soil are elongated or irregular in shape and range from 5 to 100 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is loamy fine sand about 9 inches thick. It is very dark grayish brown to a depth of 7 inches and dark gray below that. The subsurface layer is light gray loamy fine sand to a depth of 17 inches. The subsoil is sandy clay loam to a depth of about 61 inches. It is pale brown in the upper part and light brownish gray in the lower part. The underlying material to a depth of at least 80 inches is mottled light brownish gray, yellowish brown, and light reddish brown sandy clay loam.

Included in mapping are small areas of Albany, Leefield, and Rains soils. Also included are areas of soils that have a fine sand surface layer. The included soils make up less than 15 percent of the map unit.

This Lynchburg soil has a seasonal high water table within a depth of 12 to 30 inches for 1 to 3 months in most years. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is sweetgum, blackgum, longleaf pine, slash pine, loblolly pine, and an understory of inkberry and pineland threeawn. Many areas are cleared and used for improved pasture grasses.

This Lynchburg soil has moderate limitations for cultivated crops because of wetness. It is well suited to some cultivated crops, but the variety is limited by the high water table near the surface. If this soil is adequately drained, corn, soybeans, and peanuts can be grown. Crop rotations need to include a close-growing crop that remains on the land at least half the time. For high yields, this soil needs fertilizer, lime, and good seedbed preparation with the rows bedded.

This soil has high potential productivity for pine trees. Equipment limitations and plant competition are the main concerns in management. Slash and loblolly pines are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness. See tables 10 and 11 for information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness. See table 8 for more complete information concerning factors that can affect recreational development.

This Lynchburg soil is in capability subclass IIw and in woodland suitability group 12W.

38—Miccosukee fine sandy loam. This soil is moderately well drained and nearly level. It is in shallow depressions on uplands of the Coastal Plain. Individual areas of this soil are circular or irregular in shape and range from 5 to 30 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is about 43 inches thick. It is very dark grayish brown fine sandy loam to a depth of about 9 inches, very dark grayish brown clay loam to a depth of about 15 inches, and very dark grayish brown and very dark gray sandy clay loam to a depth of about 37 inches. The next layer is intermingled dark yellowish brown and dark gray fine sand. The subsoil extends to a depth of 80 inches. The upper part is dark yellowish brown fine sandy loam and the lower part is yellowish brown sandy clay.

Included in mapping are small areas of Dothan, Fuquay, Leefield, and Lynchburg soils. The included soils make up less than 15 percent of the map unit.

This Miccosukee soil is ponded for 1 or 2 days immediately after intense rainfalls. The available water capacity is moderate to high, and permeability is moderately rapid to slow. Natural fertility is medium.

The natural vegetation is dominantly loblolly pine, slash pine, longleaf pine, sweetgum, American beautyberry, greenbrier, switchgrass, purpletop, longleaf uniola, chalky bluestem, low panicums, pineland threeawn, pinewood dropseed, and annual forbs.

This soil has slight limitations for cultivated crops. A wide variety of crops are well adapted. The brief ponding after heavy rains is the main concern in management that could reduce yields. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

The Miccosukee soil has slight limitations for use as pasture and for hay. Tall fescue, coastal bermudagrass, and improved bahiagrass are well adapted. Clovers and other legumes are also adapted. Fertilizer, lime, and controlled grazing help to maintain vigorous plants for highest yields and good soil cover.

This soil has high potential productivity for pine trees. There are no significant limitations or restrictions for woodland use and management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for trench type sanitary landfills. It has moderate limitations for septic tank absorption fields, area type sanitary landfills, shallow excavations, dwellings with basements, local roads and streets, and lawns and landscaping. Wetness and low strength are some of the limiting factors. See tables 8, 10, and 11 for more complete information concerning factors that can affect urban and recreational development.

This Miccosukee soil is in capability subclass IIe and in woodland suitability group 9A.

39—Cowarts loamy fine sand, 2 to 5 percent slopes. This soil is well drained and gently undulating. It is on shoulders and summits of uplands. Individual areas of this soil are irregular in shape and range from 30 to 200 acres.

Typically, the surface layer is dark grayish brown loamy fine sand about 9 inches thick. The subsurface layer is brownish yellow loamy fine sand about 4 inches thick. The subsoil is sandy clay loam to a depth of 36 inches. It is yellowish brown to a depth of about 28 inches and strong brown sand below that. The underlying material is coarsely mottled reddish yellow, red, yellowish brown, dark yellowish brown, and white sandy clay loam to a depth of at least 80 inches.

Included in mapping are small areas of Dothan, Fuquay, and Orangeburg soils. Also included are small areas of soils that have more than 5 percent plinthite above a depth of 24 inches. The included soils make up less than 20 percent of the map unit.

This Cowarts soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is moderately rapid in the surface and subsurface layers and moderately slow to moderate in the subsoil. Natural fertility is low, but response to fertilizer and lime is good.

The natural vegetation includes longleaf pine, loblolly pine, slash pine, red oak, black cherry, hickory, and water oak. The understory includes sassafras, briers, ferns, vines, and pineland threeawn.

This soil has moderate limitations for cultivated crops because of the hazard of erosion (fig. 7). A wide variety of cultivated crops are well adapted, and such crops as corn and soybeans grow well if properly managed. This soil is well suited to fruits and nuts, such as peaches, pears, and pecans. Moderate erosion control measures are needed if cultivated crops are grown. These measures include terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. Soil-improving cover crops and all crop residue should be left on the land. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Cowarts soil has slight limitations for use as pasture and for hay. Clovers, coastal bermudagrass, and improved bahiagrass are well adapted and produce well if properly managed. Fertilizer, lime, and controlled grazing are needed to maintain vigorous plants and a good ground cover.

This soil has high potential productivity for pine trees. Plant competition is the main concern in management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields because of the moderately slow permeability. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for camp areas, picnic areas, and playgrounds because of the permeability. See table 8 for more complete information concerning factors that can affect recreational development.

This Cowarts soil is in capability subclass IIe and in woodland suitability group 9A.

41—Byars fine sandy loam, frequently flooded. This soil is very poorly drained and nearly level. It is on a broad flood plain that is one area of about 2,800 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sandy loam about 12 inches thick. The subsoil is sandy clay to a depth of 65 inches. It is gray to a depth of 45 inches and light gray below that. The underlying material is light gray sandy loam to a depth of 80 inches.

Included in mapping are small areas of Rains, Surrency, Pamlico, Dorovan, and Pelham soils. Also included are soils similar to the Byars soil except they have a mucky fine sandy loam or mucky loam surface layer. The included soils make up less than 15 percent of the map unit.

This soil has a high water table from 36 inches above the surface to 18 inches below (fig. 8). The available water capacity is moderate in the surface layer, high in the subsoil, and moderate to high in the underlying material. Permeability is moderate in the surface layer and slow in the subsoil. Natural fertility is low.

The natural vegetation is sweetgum, blackgum, tupelo, baldcypress, and water oak.

This Byars soil has severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

Because of wetness, this soil is not normally used for planting trees. Equipment limitation and seedling mortality are the main concerns in management.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness and flooding are some of the limiting factors affecting these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness and flooding. See table 8 for more complete information concerning factors that can affect recreational development.

This Byars soil is in capability subclass VIw and in woodland suitability group 7W.

42—Faceville loamy fine sand, 8 to 12 percent slopes, eroded. This soil is well drained and rolling. It is on back slopes and summits of uplands. Individual areas of this soil are elongated and range from 5 to 15 acres.

Typically, the surface layer is dark yellowish brown loamy fine sand about 4 inches thick. The subsurface layer is strong brown loamy fine sand to a depth of about 10 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish red sandy loam to a depth of 16 inches, yellowish red and red sandy clay to a depth of 53 inches, and coarsely mottled yellowish brown, red, brownish yellow, strong brown, and white sandy clay below that.

Included in mapping are small areas of Dothan, Lucy, and Orangeburg soils. Also included are small areas of soils that are moderately or severely eroded and have 15 to 25 percent smooth, hard concretions on the surface. The included soils make up less than 15 percent of the map unit.

This Faceville soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate to high in the subsoil. Permeability is rapid in

Figure 7.—Terraces are constructed in this area of Cowarts loamy fine sand, 2 to 5 percent slopes, to help control erosion.

Figure 8.—Byars fine sandy loam, frequently flooded, has severe limitations for most uses because of wetness.

the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation includes loblolly pine, slash pine, longleaf pine, red oak, water oak, and hickory. The understory is mainly briers and bahiagrass.

This soil has severe limitations for cultivated crops because of the hazard of erosion and the eroded condition of the soil. The slopes are too steep to be effectively terraced, and erosion control measures are limited to the use of vegetative cover. If row crops are grown, they should be planted in narrow strips on the contour with alternating wider strips of close-growing vegetation. Crop rotations need to include close-growing crops that remain on the soil at least three-fourths of the time. All crop residue should be left on the land. This soil needs lime and fertilizer for best yields of row crops and close-growing crops.

This Faceville soil has moderate limitations for use as pasture and for hay. It is moderately suited to coastal bermudagrass and improved bahiagrass. Because of the eroded condition of the soil, pastures are hard to establish and yields are reduced. A severe erosion hazard exists during the establishment period, and intensive erosion control measures are needed. Fertilizer, lime, and controlled grazing are needed for best yields and to assure a complete vegetative cover to prevent severe erosion. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for pine trees. There are no significant limitations or restrictions for woodland use and management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for small commercial buildings. It has moderate limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, local roads and streets, and lawns and landscaping. Slope is the main limiting factor for most of these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds and moderate limitations for camp areas, picnic areas, and golf fairways. Slope is the main limiting factor. See table 8 for information concerning factors that can affect recreational development.

This Faceville soil is in capability subclass IVe and in woodland suitability group 8A.

43—Alpin fine sand, 5 to 8 percent slopes. This soil is excessively drained and gently rolling. It is on summits and back slopes of uplands. Individual areas of this soil are irregular in shape and range from 3 to 80 acres.

Typically, the surface layer is dark grayish brown fine sand about 4 inches thick. The subsurface layer is fine sand to a depth of about 65 inches. It is yellowish brown and light yellowish brown to a depth of 30 inches, yellow to a depth of 45 inches, and very pale brown below that. The underlying layer is white fine sand that has yellowish brown loamy sand lamellae less than 1 inch thick. This layer extends to a depth of at least 80 inches.

Included in mapping are small areas of Fuquay, Lucy, and Troup soils. Also included are many sinkholes, some of which hold water year-round. The included soils make up less than 15 percent of the map unit.

This Alpin soil does not have a high water table within a depth of 80 inches. The available water capacity is low to very low, and permeability is rapid. Natural fertility is low.

The natural vegetation includes loblolly pine, longleaf pine, turkey oak, post oak, bluejack oak, and blackjack oak. The understory is honeysuckle, pineland threeawn, and running oak.

This soil has severe limitations for cultivated crops. Droughtiness, rapid leaching of plant nutrients, and the slope are the main limitations. Intensive soil management practices are needed if this soil is used for cultivated crops.

This Alpin soil has moderate limitations for use as pasture and for hay. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted, but yields are reduced by droughts and depletion of nutrients. Intensive management of soil fertility and water is needed to fully utilize this soil for pasture and hay.

This soil has moderately high potential productivity for slash and loblolly pines. Equipment limitations and seedling mortality are the main concerns in management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for sanitary landfills, shallow excavations, and lawns and landscaping. It has moderate limitations for small commercial buildings. Seepage and the sandy surface are some of the limiting factors affecting these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of sandy surface. See table 8 for more complete information concerning factors that can affect recreational development.

This Alpin soil is in capability subclass VIs and in woodland suitability group 8S.

44—Troup fine sand, 8 to 12 percent slopes. This soil is well drained and strongly sloping. It is on back slopes and foot slopes of uplands. Individual areas of this soil are elongated and range from 5 to 30 acres.

Typically, the surface layer is very dark grayish brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 49 inches. It is yellowish brown to a depth of 24 inches, light yellowish brown to a depth of 38 inches, brownish yellow to a depth of 43 inches, and yellowish brown below that. The subsoil to a depth of at least 80 inches is yellowish red sandy clay loam.

Included in mapping are small areas of Blanton, Fuquay, Lucy, and Orangeburg soils. Also included are small areas of soils similar to the Troup soil that has slope of 5 to 8 percent. The included soils make up less than 15 percent of the map unit.

This Troup soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation includes loblolly pine, slash pine, blackjack oak, and bluejack oak. The understory includes sassafras, blackberries, sumac, and pineland threeawn.

This soil has severe limitations for cultivated crops because of the hazard of erosion.

This Troup soil has moderate limitations for use as pasture and for hay, but it is well suited to tall fescue, coastal bermudagrass, and improved bahiagrass. Fertilizer, lime, and controlled grazing are needed for best yields and to assure a complete vegetation cover to prevent severe erosion. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for pine trees. Plant competition is the main concern in management. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for sanitary landfills, shallow excavations, small commercial buildings, and lawns and landscaping because of slope and the sandy texture. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of slope and the sandy surface. See table 8 for more complete information concerning factors that can affect recreational development.

This Troup soil is in capability subclass VIs and in woodland suitability group 8S.

45—Plummer fine sand, frequently flooded. This soil is poorly drained and nearly level. It is in poorly defined drainageways on uplands and flatwoods. Individual areas of this soil are elongated or irregular in shape and range from 40 to 400 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown fine sand about 18 inches thick. The subsurface layer is fine sand to a depth of 68 inches. It is dark grayish brown to a depth of 27 inches, and to a depth of 39 inches, it is brown with few dark grayish brown mottles. Below that, the subsurface is grayish brown with few strong brown mottles. The subsoil to a depth of 80 inches is gray sandy clay loam that has common yellowish brown mottles.

Included in mapping are small areas of Surrency, Bibb, Pelham, and Plummer soils. The included soils make up less than 20 percent of the map unit.

This Plummer soil is subject to stream overflow during periods of intense rainfall. This rainfall generally occurs 2 to 3 times a year in late winter and early in spring. The high water table is from 36 inches above the surface to 15 inches below for 1 to 2 months; it is within 15 inches of the surface for 3 to 6 months in most years. The available water capacity is low to very low in the subsoil. Permeability is moderately rapid to rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation on this soil is mainly sweetgum, loblolly pine, slash pine, baldcypress, water oak, American beech, and laurel oak. The understory is inkberry, ferns, and other vines and water-tolerant shrubs.

This Plummer soil has severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

This soil has moderately high potential productivity for trees, but equipment limitations, plant competition, seedling mortality, and field operation scheduling are concerns in management. Slash, loblolly, and longleaf pines are the best trees to plant, but planting is feasible only where drainage is adequate.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness and flooding are the main limiting factors. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness and flooding. See table 8 for more complete information concerning factors that can affect recreational development.

This Plummer soil is in capability subclass IVw and in woodland suitability group 7W.

46—Cowarts loamy fine sand, 5 to 8 percent slopes, eroded. This soil is well drained and gently rolling. It is on shoulders and summits of uplands. Individual areas of this soil are irregular in shape and range from 5 to 120 acres.

Typically, the surface layer is dark brown loamy fine sand about 4 inches thick. The next layer is strong brown fine sandy loam to a depth of about 8 inches. The subsoil is sandy clay loam to a depth of 40 inches. It is strong brown to a depth of 15 inches, yellowish red to a depth of 29 inches, and strong brown below that. The underlying material extends to a depth of at least 80 inches. It is strong brown and yellowish red sandy clay loam to a depth of 57 inches, and below that, it is reticulately mottled very pale brown, reddish yellow, and red sandy loam that has pockets of sandy clay loam and sandy clay. About 2 percent plinthite is in layers within a depth of 29 inches.

Included in mapping are small areas of Orangeburg, Dothan, Lucy, and Troup soils. The included soils make up less than 15 percent of the map unit.

This Cowarts soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines, and mixed hardwoods, such as red oak, water oak, sweetgum, and hickory. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has severe limitations for cultivated crops because of the hazard of erosion, but a wide variety of crops is well adapted. Corn and soybeans grow well if properly managed. Intensive erosion control practices need to include a system of well designed terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops. The soil-improving cover crops and all crop residue should be left on the soil or plowed under. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Cowarts soils has moderate limitations for use as pasture and for hay. Because of the eroded conditions of this soil, pastures are difficult to establish and yields are reduced. Tall fescue, coastal bermudagrass, and improved bahiagrass are well adapted. Clovers and other legumes are also adapted and grow well if properly managed. Fertilizer, lime, and controlled grazing are needed to maintain vigorous plants for highest yields and good soil cover. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has high potential productivity for pine trees. Plant competition is the main concern in management. Slash and loblolly pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields and small commercial buildings. Moderately slow to slow permeability and slope are the main limiting factors. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds because of the steepness of slope. It has moderate limitations for camp areas and picnic areas because of the moderately slow to slow permeability. See table 8 for more complete information concerning factors that can affect recreational development.

This Cowarts soil is in capability subclass IVe and in woodland suitability group 9A.

47—Nutall-Tooles complex. The Nutall and Tooles soils are poorly drained and nearly level. They are too intermixed to map separately at the scale used for the maps in the back of this publication. The soils are on broad, level landscapes on the flatwoods. The mapped areas are irregular in shape and range from 20 to 800 acres. Individual areas of each soil range from about 0.1 acre to 3.0 acres. Slopes range from 0 to 1 percent.

The Nutall soil makes up about 40 to 45 percent of the map unit. Typically, the surface layer is black fine sand about 4 inches thick. The next layer, to a depth of about 9 inches, is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 17 inches. The upper part is light gray and the lower part is brown. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 30 inches.

This soil has a seasonal high water table within 10 inches of the surface for 6 to 8 months. The available water capacity is low in the surface layer and high in the subsoil. Permeability is rapid in the surface layer and slow in the subsoil. Natural fertility is low.

The Tooles soil makes up about 35 to 40 percent of the map unit. Typically, the surface layer is black fine sand about 5 inches thick. The next layer, to a depth of about 9 inches, is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 32 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock is at a depth of about 46 inches.

This soil has a seasonal high water table within 10 inches of the surface during 6 to 8 months of the year. The available water capacity is low in the surface layer and high in the subsoil. Permeability is rapid in the surface layer and slow in the subsoil. Natural fertility is low.

Included in mapping are small areas of Surrency, Chaires, and Leon soils. Also included are small areas of very poorly drained soils. The included soils make up less than 20 percent of the map unit.

The natural vegetation includes slash pine, longleaf pine, laurel oak, sweetgum, cabbage palm, red maple, sweetbay, and waxmyrtle (fig. 9).

The Nutall and Tooles soils have severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

These soils have moderately high potential productivity for pine trees. Equipment limitations and plant competition are the main concerns in management. Slash, loblolly, and longleaf pines are the best trees to plant.

The Tooles and Nutall soils have severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness is the primary limiting factor. Tables 10 and 11 have more complete and exact information concerning factors that can affect urban development.

These soils have severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness. Table 8 has more complete and exact information concerning factors that can affect recreational development.

The Nutall soil is in capability subclass IVw and in woodland suitability group 6W. The Tooles soil is in capability subclass IIIw and in woodland suitability group 11W.

52—Mascotte sand. This soil is poorly drained and nearly level. It is in broad, low, flat areas on the flatwoods. Individual areas of this soil are irregular in shape and range from 5 to 200 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is black sand about 4 inches thick. The subsurface layer is gray sand to a depth of about 10 inches. The upper part of the subsoil extends to a depth of 17 inches. It is very dark brown and dark brown sand. Next is a layer of light yellowish brown and grayish brown sand to a depth of 30 inches. The lower part of the subsoil is gray sandy clay loam to a depth of at least 80 inches.

Figure 9.—Pine and cabbage palm trees are typical native vegetation on soils of the Nutall-Tooles complex.

Included in mapping are small areas of Leon, Pelham, Plummer, Sapelo, and Chaires soils. The included soils make up less than 15 percent of the map unit.

This soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months in periods of high rainfall and within a depth of 20 to 40 inches for 6 months or more in most years. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, loblolly, and slash pines. The understory is sawpalmetto, dwarf blueberry, greenbrier, fetterbush, gallberry, and bromegrass.

This soil has severe limitations for cultivated crops because of wetness.

This Mascotte soil has severe limitations for use as pasture and for hay. A good water control system is needed to remove excess water. Regular applications of fertilizer and lime are needed. Grazing needs to be controlled to maintain vigorous plant growth.

This soil has moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Planting the trees on beds lowers the effective depth of the high water table. Slash, loblolly, and longleaf pines are the best trees to plant.

This soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping. Wetness is the main limiting factor. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and wetness. See table 8 for more complete information concerning factors that can affect recreational development.

This Mascotte soil is in capability subclass IVw and in woodland suitability group 10W.

54—Leon-Chaires fine sands. This map unit consists of soils that are poorly drained and nearly level. Individual areas of these soils are too mixed to be mapped separately at the scale used for the maps in the back of this publication. These soils are on broad, nearly level landscapes on the flatwoods. The mapped areas are irregular in shape and are 20 to about 800 acres. Individual areas of each soil in this map unit range from about 0.12 acre to 3.0 acres. Slopes range from 0 to 2 percent.

The Leon soil makes up about 35 to 40 percent of the map unit. Typically, the surface layer is very dark brown fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of 30 inches. It is dark gray to a depth of about 14 inches, gray to a depth of 21 inches, and light gray below that. The subsoil is fine sand to a depth of at least 80 inches. It is dark brown to a depth of about 32 inches, yellowish brown to a depth of about 46 inches and brown and very dark grayish brown below that.

This soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for more than 6 months in most years. The available water capacity is very low in the surface and subsurface layers and low in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. Natural fertility is low.

The Chaires soil makes up about 30 to 40 percent of the map unit. Typically, the surface layer is black fine sand about 4 inches thick. The subsurface layer is gray fine sand to a depth of about 15 inches. The subsoil extends to a depth of about 80 inches. It is very dark grayish brown, dark brown and white fine sand to a depth of about 45 inches, and light gray sandy clay loam below that.

This soil has a seasonal high water table within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for 6 months or more in most years. The available water capacity is very low in the surface and subsurface layers, low in the upper part of the subsoil and medium in the lower part. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and moderately slow in the lower part. Natural fertility is low.

Included in mapping are small areas of Surrency, Albany, Plummer, and Rutlege soils. The included soils make up less than 20 percent of the map unit.

The natural vegetation includes longleaf and slash pines and water and laurel oaks. The understory is waxmyrtle, fetterbush, inkberry, sawpalmetto, titi, and pineland threeawn.

The Leon and Chaires soils have severe limitations for cultivated crops because of wetness.

These soils have severe limitations for use as pasture and for hay. A seasonal high water table and rapid leaching of plant nutrients from the soil limit the choice of plants and reduce potential yields of adapted crops. Intensive management of soil fertility and water is required for optimum production of pasture and hay.

The Leon soil has moderate potential for pine tree production, and the Chaires soil has moderately high potential. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Planting the trees on beds lowers the effective depth of the water table. Slash pines are the best trees to plant (fig. 10).

These soils have severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local road and streets, and lawns and landscaping. Wetness is the main limiting factor for most of these uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

These soils have severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness. See table 8 for more complete information concerning factors that can affect recreational development.

The Leon-Chaires soils are in capability subclass IVw. The Leon soils are in woodland suitability group 8W, and the Chaires soils are in woodland suitability group 10W.

55—Lucy loamy fine sand, 8 to 12 percent slopes. This soil is well drained and rolling. It is on back slopes and shoulders of uplands. Individual areas of this soil are elongated and irregular in shape and range from 3 to 40 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 33 inches. It is yellowish brown to a depth of 15 inches and strong brown below that. The subsoil to a depth of at least 80 inches is yellowish red sandy clay loam.

Included in mapping are small areas of Troup and Fuquay soils. Also included are small areas of soils that have slopes of less than 8 percent. The included soils make up less than 15 percent of the map unit.

This soil does not have a high water table within a depth of 80 inches. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

The natural vegetation is slash pine, longleaf pine, red oak, water oak, sweetgum, beech, black cherry, and hickory. The understory is native shrubs and grasses

Figure 10.—Pines are the best trees to plant in this area of Leon-Chaires fine sands.

including huckleberry, southern dewberry, smilax, Virginia creeper, American beautyberry, muscadine grape, yaupon, and sparse pineland threeawn.

This Lucy soil has severe limitations for cultivated crops because of poor soil qualities. Soil-improving measures are needed. Droughtiness and rapid leaching of plant nutrients severely limit the suitability of this soil for most row crops. The steepness of slopes further limits the suitability by making cultivation more difficult and by increasing the hazard of erosion. Cultivated row crops need to be planted in strips on the contour alternating with wider strips of close-growing, soil-improving crops. Crop rotations also need to include close-growing crops that remain on the land at least two-thirds of the time. Fertilizer and lime are needed for all crops. Soil-improving cover crops and residue of all other crops should be left on the land.

This soil has moderate limitations for use as pasture and for hay. Because of the slope, pastures are hard to establish and erosion is a hazard. Deep-rooting plants, such as coastal bermudagrass and bahiagrass, are well adapted, but potential yields are reduced because of steepness of the slope. Good stands of grass can be produced if fertilizer and lime are added to the soil. Controlled grazing is needed to maintain vigorous plants that provide good protective cover. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has moderately high potential productivity for trees. Equipment limitations, seedling mortality, and plant competition are the main concerns in management. Slash, longleaf, and loblolly pines are the best trees to plant.

This soil has severe limitations for area type sanitary landfills because of seepage and severe limitations for small commercial buildings because of the slope. It has moderate limitations for septic tank absorption fields, trench type sanitary landfills, shallow excavations, dwellings, local roads and streets, and lawns and landscaping because of the slope and cutbanks caving. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds because of the slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Lucy soil is in capability subclass IVs and in woodland suitability group 11S.

56—Tifton gravelly loamy fine sand, 2 to 5 percent slopes. This soil is well drained and gently undulating. It is on shoulders and summits of uplands. Individual areas of this soil are irregular in shape and range from 5 to 120 acres.

Typically, the surface layer is dark grayish brown gravelly loamy fine sand about 6 inches thick. The subsurface layer is yellowish brown gravelly sandy loam to a depth of about 10 inches. The subsoil extends to a depth of at least 80 inches. It is yellowish brown gravelly sandy clay loam to a depth of about 45 inches. Below that, the subsoil is sandy clay loam that is yellowish brown to a depth of about 60 inches and reticulately mottled yellowish brown, red, very pale brown, and light gray below that.

Included in mapping are small areas of Dothan, Cowarts, Orangeburg, and Fuquay soils. The included soils make up less than 20 percent of the map unit.

This Tifton soil does not have a high water table within a depth of 80 inches during most of the year. It has a perched high water table above the subsoil briefly during wet periods. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines, and mixed hardwoods, such as red oak, water oak, sweetgum, hickory, beech, and black cherry. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has moderate limitations for cultivated crops because of the hazard of erosion. Corn and peanuts are adapted if properly managed. Erosion control measures need to include terraces with stabilized outlets and contour cultivation of row crops in alternate strips with cover crops. Crop rotations also need to include cover crops that remain on the land at least half the time. Crop residue and the soil-improving cover crops should be left on the ground or plowed under. Tile drainageways help to maintain good drainage for cash crops, such as tobacco, that are damaged by the slight wetness. For maximum yields, this soil needs good seedbed preparation, fertilizer, and lime.

This Tifton soil has slight limitations for use as pasture and for hay. Improved pasture plants, such as clovers, tall fescue, coastal bermudagrass, and improved bahiagrass, are well adapted and produce well if they are properly managed. Fertilizer, lime, and controlled grazing help to maintain vigorous plants for a good ground cover.

This soil has high potential productivity for pine trees, and it does not have any significant restrictions or limitations for woodland use. Slash and loblolly pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, shallow excavations, and dwellings with basements because of the moderately slow permeability and wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has moderate limitations for playgrounds because of slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Tifton soil is in capability subclass IIe and in woodland suitability group 9A.

57—Tifton gravelly loamy fine sand, 5 to 8 percent slopes, eroded. This soil is well drained and gently rolling. It is on shoulders and summits on uplands. Individual areas of this soil are irregular in shape and range from 5 to 120 acres.

Typically, the surface layer is dark grayish brown gravelly loamy fine sand about 6 inches thick. The subsurface layer is yellowish brown gravelly sandy loam to a depth of about 10 inches. The subsoil is sandy clay loam to a depth of at least 80 inches. It is strong brown to a depth of 29 inches, brownish yellow to a depth of 40 inches, yellowish brown to a depth of 50 inches, and reticulately mottled yellowish brown, red, very pale brown, and light gray below that.

Included in mapping are small areas of Dothan, Cowarts, Orangeburg, and Fuquay soils. The included soils make up less than 20 percent of the map unit.

This Tifton soil does not have a high water table within a depth of 80 inches for most of the year, but a perched high water table is above the subsoil briefly during wet periods. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow in the subsoil. Natural fertility is low.

The natural vegetation is longleaf, slash, and loblolly pines and mixed hardwoods, such as red oak, water oak, sweetgum, hickory, black cherry, and beech. The understory is native grasses and shrubs including huckleberry, briers, and pineland threeawn. Many areas have been cleared and are used for crops and pasture.

This soil has severe limitations for cultivated crops because of the hazard of erosion and the eroded condition of the soil. It is only moderately suited to most crops including corn, soybeans, and peanuts. The variety of adapted crops is also somewhat limited by occasional wetness. Intensive erosion control measures are needed to utilize this soil for crops. Such measures include carefully designed terraces with stabilized outlets, contour cultivation of row crops grown in alternate strips with close-growing crops, and crop rotations that include close-growing crops on the land at least two-thirds of the time. Soil-improving cover crops and all crop residue should be left on the land. Tile or open drainageways are needed to intercept seepage water from higher areas. Rows crops need to be planted on beds. Good seedbed preparation, fertilizer, and lime are needed for maximum yields.

This Tifton soil has moderate limitations for use as pasture and for hay. Because of the eroded condition of the soil, pastures are difficult to establish and yields are reduced. Coastal bermudagrass and improved bahiagrass are well adapted and produce moderate yields if fertilizer and lime are added. Controlled grazing helps to maintain vigorous plants for maximum yields and good soil cover. An established and well maintained pasture or hay crop is the best use for this soil.

This soil has high potential productivity for slash, loblolly, and longleaf pines, and it does not have any significant limitations or restrictions for woodland use. Slash, longleaf, and loblolly pines are the best trees to plant.

This soil has moderate limitations for septic tank absorption fields, shallow excavations, dwellings with basements, and small commercial buildings because of wetness and slope. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil has severe limitations for playgrounds because of slope. See table 8 for more complete information concerning factors that can affect recreational development.

This Tifton soil is in capability subclass IIIe and in woodland suitability group 9A.

58—Chiefland-Chiefland, frequently flooded, fine sands. This mapping unit consists of soils that are nearly level and moderately well drained. These soils are on the lower Coastal Plain and are too intermixed to be mapped separately at the scale used for the maps in the back of this publication. Individual areas of these soils are irregular in shape and range from 25 to 1,200 acres. Slopes range from 0 to 2 percent.

The Chiefland soil that is not flooded makes up about 35 to 50 percent of the map unit. Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is light gray fine sand to a depth of about 25 inches. The subsoil is brownish yellow fine sandy loam to a depth of 32 inches. It is underlain by yellow, soft weathered limestone. Limestone bedrock is at a depth of 49 inches.

This Chiefland soil has a high water table between depths of 50 and 72 inches after periods of heavy rainfall.

The Chiefland, frequently flooded, soil makes up about 20 to 30 percent of the map unit. Typically, the surface layer is fine sand 28 inches thick. It is very pale brown, pale brown, and light yellowish brown with common yellowish brown distinct mottles in the lower part of the layer. The subsoil, to a depth of 52 inches, is yellowish brown sandy loam that has many very fine distinct yellowish brown mottles. Soft limestone bedrock is at a depth of 52 inches.

This Chiefland soil floods for 8 to 30 days after extended periods of rain, usually early in spring. It has a high water table within a depth of 50 inches for an additional month after flood water recedes. The high water table is between depths of 50 and 72 inches for the remainder of the year.

The available water capacity in the Chiefland soils is very low in the surface and subsurface layers and low in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low.

Included in mapping are small areas of Nutall, Tooles, Chaires-Tooles depressional, and Chaires depressional soils. The included soils make up less than 30 percent of the map unit.

The natural vegetation is live oak, post oak, slash pine, longleaf pine, and hickory. The understory is red maple, huckleberry, chalky bluestem, and persimmon.

The Chiefland soils have severe limitations for cultivated crops because of wetness and flooding.

These soils have severe limitations for use as pasture and for hay. Flooding and periodic droughts during the year are the main limiting factors. Deep-rooting coastal bermudagrass and improved bahiagrass are moderately well adapted. Grazing needs to be controlled to maintain plant vigor and a good ground cover.

These soils have moderately high potential productivity for pine trees. Equipment limitations, seedling mortality, and timing of the harvest are the main concerns in management. Slash, loblolly, and longleaf pines are the best trees to plant.

The Chiefland soil that does not flood has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, and lawns and landscaping. It has moderate limitations for dwellings with basements. Depth to bedrock and seepage are some of the limiting factors affecting those uses. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

This soil also has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of the sandy surface and droughtiness. See table 8 for more complete information concerning factors that can affect recreational development.

The Chiefland, frequently flooded, soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of flooding. See tables 10 and 11 for more complete and exact information concerning factors that can affect urban development.

This soil also has severe limitations for camp areas, picnic areas, playgrounds, and paths and trails because of flooding and the sandy surface. Droughtiness is a severe limitation for golf fairways. See table 8 for more complete information concerning factors that can affect recreational development.

This Chiefland-Chiefland, frequently flooded, soils are in capability subclass IIIs and in woodland suitability group 11S.

61—Tooles-Tooles, depressional-Chaires, depressional, fine sands. This map unit consists of soils that are poorly drained or very poorly drained and nearly level. These soils are too intermixed to be mapped separately at the scale used for the maps in the back of this publication. These soils are on broad, level landscapes on the flatwoods. The mapped areas are irregular in shape and range from 20 to 800 acres. Individual areas of each soil range from about 0.1 acre to 3.0 acres.

The Tooles soil that is not depressional makes up about 35 to 40 percent of the map unit. Typically, the surface layer is black fine sand about 5 inches thick. The next layer, to a depth of about 9 inches, is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 32 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock occurs at a depth of about 46 inches.

This soil has a seasonal high water table within 10 inches of the surface during 6 to 8 months of the year. The available water capacity is low in the surface and subsurface layers and high in the subsoil. Permeability is rapid in the surface and subsurface layers and slow in the subsoil. Natural fertility is low.

The Tooles, depressional, soil makes up about 25 to 30 percent of the map unit. Typically, the surface layer is black fine sand about 10 inches thick. The next layer to a depth of about 18 inches, is very dark gray and light gray fine sand. The subsurface layer is light gray to brown fine sand to a depth of 39 inches. The subsoil is light greenish gray sandy clay loam. Limestone bedrock occurs at a depth of about 46 inches.

This soil has a high water table as much as 24 inches above the surface for 8 to 10 months. It has a seasonal high water table between the surface and a depth of 10 inches for most of the remainder of the year. The available water capacity is low in the surface and subsurface layers and high in the subsoil. Permeability is rapid in the surface and subsurface layers and slow in the subsoil. Natural fertility is low.

The Chaires, depressional, soil makes up about 25 to 30 percent of the map unit. Typically, the surface layer is dark brown fine sand 9 inches thick. The subsurface layer is dark grayish brown and light gray fine sand to a depth of 28 inches. The subsoil is very dark brown fine sand to a depth of 54 inches and gray and light greenish gray sandy clay loam to a depth of 80 inches.

This soil has a high water table as much as 24 inches above the surface for 4 to 6 months. It has seasonal high water table between the surface and a depth of 12 inches for most of the remainder of the year. The available water capacity is very low in the surface and subsurface layers and ranges from low to high in the subsoil. Permeability is rapid in the surface and subsurface layers and the upper part of the subsoil, but it is slow in the lower part of the subsoil. Natural fertility is low.

Included in mapping are small areas of Nutall, Surrency, Chaires, and Leon soils. The included soils make up less than 15 percent of the map unit.

The natural vegetation includes cabbage palm, sweetgum, red maple, sweetbay, slash pine, pond cypress, and blackgum.

The soils of this map unit have severe limitations for cultivated crops, hay, and for use as pasture because of wetness.

These soils have moderately high potential productivity for woodland, although baldcypress and blackgum trees grow in the wetter areas. Equipment limitations and seedling mortality are the main concerns in management. Planting trees on beds lowers the effective depth of the high water table.

These soils have severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness and ponding. See tables 10 and 11 for more complete information concerning factors that can affect recreational development.

These soils have severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness and ponding. See table 8 for more complete information concerning factors that can affect recreational development.

The Tooles soil is in capability subclass IIIw; the Tooles, depressional, soil is in capability subclass VIIw; and the Chaires, depressional, soil is in capability subclass VIw. The Tooles soils is in woodland suitability group 11W, and the Tooles, depressional, and Chaires, depressional, soils are in woodland suitability group 2W.

62—Nutall-Tooles fine sands, frequently flooded. This map unit consists of soils that are very poorly drained and nearly level. The Nutall and Tooles soils are too intermixed to be mapped separately at the scale used for the maps at the back of this publication. These soils are along major drainageways on the flatwoods. The mapped areas are irregular in shape and range from 20 to several thousand acres. Individual areas of each soil range from about 0.12 acre to 3.0 acres. Slopes range from 0 to 1 percent.

The Nutall soil makes up about 40 to 50 percent of the map unit. Typically, the surface layer is black fine sand about 6 inches thick. The next layer, to a depth of about 9 inches, is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 23 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock occurs at a depth of about 30 inches.

This soil is flooded with water to as much as 48 inches above the surface 6 to 8 months during the year. A seasonal high water table is between the surface and a depth of 12 inches for most of the remainder of the year. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and slow in the subsoil. Natural fertility is low.

The Tooles, flooded, soil makes up about 40 to 50 percent of the map unit. Typically, the surface layer is black fine sand about 7 inches thick. The next layer, to a depth of about 9 inches, is very dark gray and light gray fine sand. The subsurface layer is fine sand to a depth of about 39 inches. It is light gray in the upper part and brown in the lower part. The subsoil is light greenish gray sandy clay loam. Limestone bedrock occurs at a depth of about 46 inches.

This soil is flooded with water to as much as 48 inches above the surface for 6 to 8 months during the year. A seasonal high water table is between the surface and a depth of 12 inches for most of the remainder of the year. The available water capacity is low in the surface and subsurface layers and high in the subsoil. Permeability is rapid in the surface and subsurface layers and slow in the subsoil. Natural fertility is low.

Included in mapping are small areas of Chaires, Chaires depressional, Surrency, and nonflooded phases of Nutall and Tooles soils. The included soils make up less than 20 percent of the map unit.

The natural vegetation includes red maple, sweetgum, cabbage palm, tupelo, baldcypress, and water oak.

The Nutall and Tooles soils have severe limitations for cultivated crops, hay, and for use as pasture because of wetness and flooding.

These soils have moderately high potential productivity for woodland; however, pine trees do not grow well on these soils. Hardwoods, baldcypress, and sweetgum trees grow well.

These soils have severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of flooding and wetness. See tables 10 and 11 for more complete information concerning factors that can affect urban development.

These soils have severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways mainly because of wetness and flooding. See table 8 for more complete information concerning factors that can affect recreational development.

The Nutall and Tooles soils are in capability subclass Vw and in woodland suitability group 7W.

63—Bayvi muck. This soil is very poorly drained and nearly level. It is in the coastal tidal marsh. Individual areas of this soil are elongated. Slopes range from 0 to 2 percent.

Typically, the surface layer is black muck about 5 inches thick, black mucky loamy sand to a depth of 17 inches, and very dark grayish brown sand to a depth of 31 inches. The underlying material is grayish brown sand to a depth of 53 inches and gray sand to a depth of 80 inches.

Included in mapping are small areas of soils that have limestone bedrock between depths of 50 and 80 inches and areas of soils that have muck more than 8 inches in depth. The included soils make up less than 35 percent of the map unit. Also included are small islands, generally less than 2 acres in size, which support a mixed growth of palms, pines, and cedars. The islands make up less than 1 percent of the map unit.

This Bayvi soil is flooded daily by normal high tides. The available water capacity is high in the surface layer and very low in the underlying material. Permeability is moderate in the surface layer and rapid in the underlying material. Natural fertility is low.

The natural vegetation is dominantly needlegrass (fig. 11), rushes, saltgrass, and smooth and marshhay cordgrass.

This soil has severe limitations for cultivated crops, hay, and for use as pasture because of wetness and salinity.

This soil does not grow trees and is not rated for the production of pine trees.

This Bayvi soil has severe limitations for septic tank absorption fields, sanitary landfills, shallow excavations, dwellings, small commercial buildings, local roads and streets, and lawns and landscaping because of wetness and flooding. See table 10 and 11 for more complete information concerning factors that can affect urban development.

Figure 11.—Bayvi muck has severe limitations for most uses because of wetness. Most areas of this soil remain in native grasses, such as this needlegrass.

This soil has severe limitations for camp areas, picnic areas, playgrounds, paths and trails, and golf fairways because of wetness and flooding. See table 8 for more complete information concerning factors that can affect recreational development.

This Bayvi soil is in capability subclass VIIIw. It is not assigned to a woodland suitability group.

Prime Farmland

In this section, prime farmland is defined and discussed, and the prime farmland soils in Jefferson County are listed.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 6 percent.

About 81,600 acres, or nearly 21 percent of Jefferson County, meets the soil requirements for prime farmland. The trend of land use to urban and related uses has resulted in the loss of some prime farmland. This loss puts pressure on marginal land, which generally is more erodible, droughty, and difficult to cultivate, and usually less productive.

The following map units, or soils, make up prime farmland in Jefferson County. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. In the following list, the measures needed to overcome the limitations of a map unit, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if the limitations have been overcome by the corrective measures.

6 Dothan loamy fine sand, 2 to 5 percent slopes
7 Dothan loamy fine sand, 5 to 8 percent slopes, eroded
13 Orangeburg sandy loam, 2 to 5 percent slopes
14 Orangeburg sandy loam, 5 to 8 percent slopes, eroded
31 Faceville fine sandy loam, 2 to 5 percent slopes
32 Faceville fine sandy loam, 5 to 8 percent slopes, eroded
56 Tifton gravelly loamy fine sand, 2 to 5 percent slopes
57 Tifton gravelly loamy fine sand, 5 to 8 percent slopes, eroded

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

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

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

Crops and Pasture

Gary J. Reckner, soil conservationist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils in the survey area are identified, the system of land capability classification used by the Soil Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

About 113,900 acres in Jefferson County was used for crops and pasture. Of this, 25,000 acres was used for pasture; 78,900 acres for field crops, and 10,000 acres for special crops. This information is according to the 1978 Census of Agriculture, Soil Conservation Service records, Agricultural Stabilization and Conservation Service Rural Development Report, and Cooperative Extension Service estimates.

The soils in Jefferson County have good potential for increased food production. An equal amount of potentially good cropland is currently used as woodland and as pasture. This land could be converted to cropland, but intensive conservation measures should be used to control erosion during the conversion phase. In addition to the reserve capacity represented by soils now used as woodland and pasture, food production could be increased considerably by extending the latest crop production technology to all cropland in the county. This soil survey can help in the application of such technology.

The acreage in crops and pasture has remained fairly constant, but the acreage in woodland has gradually increased as more and more land is converted because of economic conditions of farming. In 1980, about 5,168 acres of urban land was in the county. This acreage has increased gradually for the past 10 years, according to the Comprehensive Plan for Jefferson County. A greater rate of increase is expected in the future.

Soil erosion is a problem on about two-thirds of the cropland and pastureland in Jefferson County. If slope is more than 2 percent on the well drained and moderately well drained Bonifay, Dothan, Fuquay, Lucy, Orangeburg, Tifton, and Troup soils, erosion is a hazard. It is also a hazard on the somewhat poorly drained Leefield and Chipley soils.

Productivity is reduced as the topsoil and nutrients are eroded and part of the subsoil is incorporated into the plow layer. Soil erosion on farmland also results in sediment, fertilizer, and pesticides entering streams.

Control of erosion minimizes this pollution of streams and improves the quality of the water for municipal and recreational uses and for fish and wildlife.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. Vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soil. On livestock farms that need pasture and hay, legume and grass forage crops in the cropping system reduce erosion on erodible, sloping land. These crops also provide nitrogen and improve tilth for the crop that follows in the cropping system.

Minimizing tillage and leaving crop residue on the surface increase infiltration and reduce the hazards of runoff and erosion by intense rains. These practices can be implemented on most soils in the county, but they are more difficult to use successfully on eroded soils. No-till systems for corn and soybeans are effective in reducing erosion on sloping land and can be utilized on most soils in the county.

Terraces, diversions, and stripcropping reduce runoff and erosion by reducing the length of slope. These practices are more practical on deep, well drained soils that have regular slopes. Diversions and sod waterways, which reduce runoff and erosion, can be installed on most soils in the county. Terraces and diversions are more difficult to install successfully on the soils that have a clayey surface layer. Contouring is seldom used in Jefferson County except in areas that have parallel terraces.

Wind erosion is a hazard on soils that have a sandy or loamy sand surface layer. Less than 500 acres of the county's cropland soils is sandy and is subject to wind erosion. Wind erosion can damage soils and tender crops in a few hours in open, unprotected areas if the winds are strong and the soil surface is dry and bare of vegetation and mulch. Maintaining plant cover and surface mulch minimizes wind erosion.

Wind erosion reduces soil fertility by removing finer soil particles and organic matter; damages or destroys crops by sandblasting; spreads diseases, insects, and weed seeds; causes problems to drainage ditches, roads, fences, and equipment; and contributes to air pollution. With increased use of herbicides and other pesticides, windblown soil is becoming an increasing chemical drift hazard. Control of wind erosion minimizes dust storms and improves air quality for more healthful living conditions.

Maintaining plant cover and surface mulch minimizes soil blowing. Field windbreaks of adapted trees and shrubs, such as Carolina cherry laurel, sand pine, southern redcedar; and strip crops of small grain are effective in reducing wind erosion and crop damage. Field windbreaks and strip crops are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The intervals depend on the erodibility of the soil and the susceptibility of the crops to damage from sandblasting.

Information for the design of erosion control practices for each kind of soil is in the "Erosion Control Handbook—Florida," which is available in the local office of the Soil Conservation Service.

Soil drainage is not a major management need for acreage currently used for crops and pasture in Jefferson County. Soils that are poorly drained and very poorly drained are not normally used for crops and pastures.

Soil fertility is naturally low on most soils in the county. Most of the soils have a sand or loamy sand surface layer. Many of the soils have a loamy subsoil. In this category are the Albany, Blanton, Dothan, Fuquay, Leefield, Lucy, Orangeburg, Tifton, and Troup soils. The Chipley, Lakeland, and Ortega soils have sandy material to a depth of 80 inches or more. The Chaires, Leon, Mascotte, and Sapelo soils have an organically stained layer within their sandy subsoil. Most soils have a surface layer that is strongly acid or very strongly acid. Lime is needed to raise the pH level sufficiently for good growth of crops. Nitrogen, potash, and available phosphorus levels are naturally low in most of these soils. All additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crops, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous.

Most soils in the county used for crops and pasture are low to moderate in organic matter content. Generally, the structure of the surface layer of these soils is weak. Soils low in organic matter content form a slight crust following intense rainfall. The crust is slightly hard when it is dry and is slightly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. The increased runoff causes soil erosion. Regular additions of crop residue, manure, and other organic material can improve soil structure and reduce crust formation.

Fall plowing for spring planting is generally not a good practice in Jefferson County. About two-thirds of the cropland is on sloping soils that are subject to damaging erosion if they are plowed and exposed all winter.

Field crops grown in the county include corn, soybeans, peanuts, cotton, tobacco, wheat, oats, and forage and grain sorghum. Oats, ryegrass, rye, and wheat are the common close-growing crops sown for winter grazing. They are often grown with clovers, specifically arrow-leaf clover.

Special crops grown commercially in the county are pecan and nursery crops, watermelons, snap beans, peas, and some squash, blueberries, grapes, and blackberries. If economic conditions are favorable, there is potential to increase blueberries, grapes, blackberries, and nursery plants. Nursery production is both field and container grown. Woody ornamentals, fruits, and pecans are produced in nurseries.

Deep soils that have good natural drainage are especially well suited to many vegetables and small fruits. The Dothan, Fuquay, Lucy, Orangeburg, and Tifton soils on slopes of less than 8 percent are in this category. If irrigated, Blanton, Bonifay, Lakeland, and Troup soils that have slopes of less than 8 percent are well suited to vegetables and small fruit. In addition, if adequately drained, the Albany, Chipley, and Leefield soils are well suited to vegetables and small fruits.

Most of the well drained and moderately well drained soils in the county are suitable for orchards and nursery plants. However, if these soils are in low areas that have poor air drainage and frequent frost pockets, they are not as well suited to early vegetables, small fruits, and orchards.

Pastures are used to produce forage for beef and dairy cattle. Stocker-grazer cattle and cow-calf operations are the major beef cattle systems. Bahiagrass and coastal bermudagrass are the major pasture plants. Grass seeds could be harvested from bahiagrass for improved pasture plantings as well as commercial purposes. Many cattlemen seed small grain on cropland and overseed ryegrass on pastures in the fall for winter and spring grazing. Small grain, arrowleaf clover, and ryegrass winter pastures, followed by crabgrass grazing can supply forage for up to 9 months. Excess grass is harvested from coastal bermudagrass and bahiagrass as hay during the summer for feeding during the winter.

The well drained and moderately well drained Dothan, Fuquay, Lucy, Orangeburg, and Tifton soils are well suited to use for bahiagrass, alfalfa, and improved bermudagrass hay fields and pastures. If adequate lime and fertilizer are added, the somewhat poorly drained Albany, Chipley, and Leefield soils are well suited to bahiagrass and improved bermudagrass with legumes, such as white, crimson, and arrowleaf clover. Where irrigation is needed and used, the total forage production will increase on these soils.

Pasture in many parts of the county is greatly depleted by continuous excessive grazing. Pasture yields can be increased with the proper use of lime, fertilizer, legumes, drainage, irrigation, and other management practices.

The amount and kind of pasture yields are related closely to the kind of soil. Proper management of pasture is based on the relationship of soils, pasture plants, lime, fertilizer, and moisture.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

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

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

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

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

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

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 they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

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

There are no subclasses in class I because the soils of this class have few limitations. None of the soils in Jefferson County are in capability class I. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w* or *s*.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Phillip W. Worley, forestry consultant, helped prepare this section.

The management of woodland in Jefferson County is extremely important to the agriculture program in the area. About 279,130 acres, or 71 percent of the county, is forest land. The soils and climate are ideally suited to timber production, which results in high yields and fast growth in well managed stands. The northern part of the county primarily produces quality loblolly pine and upland hardwoods, and the southern part produces slash pine and bottom land hardwoods. About 50 percent of the woodland is owned by private landowners, 47 percent is owned by large wood-using industries, and 3 percent is held by county, state, and federal ownerships *(7)*.

Slash pine, the dominant species on the lower flatwoods makes up about 90 percent of the forest land in the area. Loblolly pine and upland hardwoods share about equal stocking in the upland areas. The most common hardwoods are sweetgum, water oak, live oak, bays, and blackgum, and the most common pines are slash, loblolly, longleaf, and shortleaf.

Pulpwood, sawlogs, poles, and veneers are some of the major products produced. About 44.5 million board feet of sawtimber is removed annually. This accounts for about 11.5 million dollars of revenue generated from the forest industry in the area each year *(8)*. Improved management could greatly increase this figure. Reforestation has been increasing in the past few years because of the strong demand for wood and paper products. Regeneration, both naturally and artificially, of about 2,400 acres of pines is carried out each year.

Besides growing timber for economic benefits, woodland is also maintained for recreation, aesthetics, and soil loss protection. Numerous large hunting plantations, ranging from 3,000 to 25,000 acres, utilize the timber as food and cover for wildlife.

Timber management varies from intensive thinning, clearcutting, and planting on corporate land to less intensive selective cutting and harvesting on private land. Fire is important in reducing hazardous ground litter and in exposing mineral soil as a seedbed for natural reproduction. It also encourages grasses and forbs, which help support various wildlife, such as deer, turkey, and quail.

Markets for wood crops are plentiful in the area. Pulp and paper mills are the major outlets. Several sawmills in the area are in operation for the production of lumber and veneers. About 18 wood-using industries buy wood in Jefferson County.

More detailed information on woodland and woodland management can be obtained from local consulting foresters, Florida Division of Forestry, and the Soil Conservation Service.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Available water capacity and depth of the root zone are major influences of tree growth. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to fertilization than others, some are more susceptible to landslides and erosion after building roads and harvesting timber, and some require special efforts to reforest. In the section "Detailed soil map units," each map unit in the survey area suitable for producing timber presents information about productivity, limitations for harvesting timber, and management concerns for producing timber. The common forest understory plants are also listed. Table 7 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The first tree listed for each soil under the column "Common trees" is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

Table 7 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation for use and management. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *S* indicates a dry, sandy soil. The letter *A* indicates a soil that has no significant restrictions or limitations for forest use and management. If a soil has more than one limitation, the priority is as follows: W and S.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation activities or harvesting operations expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of *moderate* or *severe* indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning of harvesting and reforestation operations, or use of specialized equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, or susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment must be used. On the steepest slopes, even tracked equipment cannot operate; more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by soil wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are steep enough that wheeled equipment cannot be operated safely across the slope, if soil wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. The rating is *severe* if slopes are steep enough that tracked equipment cannot be operated safely across the slope, if soil wetness restricts equipment use for more than 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. Ratings of *moderate* or *severe* indicate a need to choose the most suitable equipment and to carefully plan the timing of harvesting and other management operations.

Ratings of *seedling mortality* refer to the probability of death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall as influenced by kinds of soil or topographic features. *Seedling mortality* is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth and duration of the water table, rock fragments in the surface layer, rooting depth, and the aspect of the slope. Mortality generally is greatest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of *moderate* or *severe* indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing surface drainage, or providing artificial shade for seedings. Reinforcement planting is often needed if the risk is *moderate* or *severe*.

Ratings of *windthrow hazard* consider the likelihood of trees being uprooted by the wind. Restricted rooting depth is the main reason for windthrow. Rooting depth can be restricted by a high water table, fragipan, or bedrock, or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them; *moderate* if strong winds cause an occasional tree to be blown over and many trees to break; and *severe* if moderate or strong winds commonly blow trees over. Ratings of *moderate* or *severe* indicate the need for care in thinning or possibly not thinning. Specialized equipment may be needed to avoid damage to shallow root systems in partial cutting operations. A plan for periodic salvage of windthrown trees and the maintenance of a road and trail system may be needed.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. *Plant competion* becomes more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants reduces adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants reduces natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A *moderate* or *severe* rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The potential productivity of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The procedure and technique for doing this are given in the site index tables used for the Jefferson County Soil Survey *(3, 4, 5, 6, 10, 14)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

Trees to plant are those that are used for reforestation or, if suitable conditions exist, natural regeneration. They are suited to the soils and will produce a commercial wood crop. Desired product, topographic position (such as a low, wet area), and personal preference are three factors of many that can influence the choice of trees to use for reforestation.

Recreation

In table 8, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

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

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

John F. Vance, Jr., biologist, Soil Conservation Service, helped prepare this section.

The soils of Jefferson County support a wide diversity of vegetative communities, which provide good habitat for wildlife. These communities include the upland mixed hardwood-pine and sandhills; the pine flatwoods; freshwater lakes, rivers, and marshes; swamp forests and wetland hardwood hammocks; and the salt marshes along the coast.

Larger areas of importance to wildlife include the swamps along the Aucilla and Wacissa Rivers; the 5,200 acre Lake Miccosukee; the 80,000 acres of the Aucilla Wildlife Management Area; and the 8,000 acres in St. Marks National Wildlife Refuge. In addition, several large private plantations are managed primarily for wildlife.

The primary game are white-tailed deer, bobwhite quail, gray and fox squirrels, wild turkey, mourning dove, and waterfowl. Other wildlife includes raccoon, oppossum, fox, skunk, bobcat, otter, rabbit, armadillo, and a wide variety of songbirds, wading birds, shorebirds, woodpeckers, reptiles, and amphibians. A wide variety of fish, both freshwater and saltwater, provide good fishing. Largemouth bass, bluegill, redear and red breasted sunfish, spotted sunfish, and catfish are the primary freshwater fish, and speckled trout and redfish are important saltwater fish.

A number of threatened or endangered species, such as the red-cockaded woodpecker, are in the county. A detailed listing with information on range and habitat may be obtained from the Soil Conservation Service.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, soybeans, cowpeas, and millet.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are ryegrass, bahiagrass, hairy indigo, clover, and lespedeza.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are partridgepea, goldenrod, beggarweed, low panicum, and ragweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, sawpalmetto, dogwood, hickory, blackberry, and gallberry.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and sparrow hawk.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, wild hog, and owl.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, egrets, herons, ibis, kingfisher, mink, otter, alligator, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet, and because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations must be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to: evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

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

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost-action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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

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

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

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

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

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

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

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding;

subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 20.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 20.

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

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

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

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They influence the soil's adsorption of cations, moisture retention, shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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

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

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

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Soil and Water Features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have 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.

Some of the soils in table 16 are shown as having dual hydrologic groups, such as B/D. The B/D listing means that under natural conditions the soil belongs to hydrologic group D, but by artificial methods the water table can be lowered sufficiently so that the soil fits in hydrologic group B. Since there are different degrees of drainage or water table control, onsite investigation is needed to determine the hydrologic group of the soil at a particular location.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (there is a near 0 to 5 percent chance of flooding in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (there is a 5 to 50 percent chance of flooding in any year). *Frequent* means that flooding occurs often under normal weather conditions (there is more than a 50 percent chance of flooding in any year). *common* is used when classification as occasional or frequent does not affect interpretations. Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. November-May, for example, means that flooding can occur during the period November through May. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely, thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons, which are characteristic of soils that are not subject to flooding.

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, *perched*, or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 16.

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

The two numbers in the "High water table-Depth" column indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that the water table exists for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 16 shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Not shown in the table is subsidence caused by an imposed surface load or by the withdrawal of ground water throughout an extensive area as a result of lowering the water table.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Physical, Chemical, and Mineralogical Analyses of Selected Soils

Dr. Victor W. Carlisle, professor of soil science, and Dr. Mary E. Collins, assistant professor of soil science, University of Florida, Soil Science Department, prepared this section.

Parameters for physical, chemical, and mineralogical properties of representative pedons sampled in Jefferson County are presented in tables 17, 18, and 19. The analyses were conducted and coordinated by the Soil Characterization Laboratory at the University of Florida. Detailed profile descriptions of soils analyzed are given in the section "Soil Series and Their Morphology." Laboratory data and profile information for other soils in Jefferson County, as well as for other counties in Florida, are on file at the University of Florida, Soil Science Department.

Typifying pedons were sampled from pits at carefully selected locations. Samples were air-dried, crushed, and sieved through a 2 millimeter screen. Most analytical methods used are outlined in Soil Survey Investigations Report No. 1 *(13)*.

Particle-size distribution was determined using a modified pipette method with sodium hexametaphosphate dispersion. Hydraulic conductivity and bulk density were determined on undisturbed soil cores. Water retention parameters were obtained from duplicate undisturbed soil cores placed in tempe pressure cells. Weight percentages of water retained at 100 centimeters water (1/10 bar) and 345 centimeters water (1/3 bar) were calculated from volumetric water percentages divided by bulk density. Samples were oven dried and ground to pass a 2 millimeter sieve, and the 15-bar water retention was determined. Organic carbon was determined by a modification of the Walkley-Black wet combustion method.

Extractable bases were obtained by leaching soils with 1 normal ammonium acetate buffered at pH 7.0. Sodium and potassium in the extract were determined by flame emission. Calcium and magnesium extractable were determined by atomic absorption spectrophotometry. Extractable acidity was determined by the barium chloride-triethanolamine method at pH 8.2. Cation-exchange capacity was calculated by summation of extractable bases and extractable acidity. Base saturation is the ratio of extractable bases to cation-exchange capacity expression in percent. The pH measurements were made with a glass electrode using a soil-water of 1:1, a 0.01 molar calcium chloride solution in a 1:2 soil-solution ratio; and 1 normal potassium chloride solution in a 1:1 soil-solution ratio.

Electrical conductivity determinations were made with a conductivity bridge on 1:1 soil to water mixtures. Iron and aluminum extractable in sodium dithionite-citrate were determined by atomic absorption spectrophotometry. Aluminum, carbon, and iron were extracted from a probable spodic horizon with 0.1 molar sodium pyrophosphate. The determination of aluminum and iron was by atomic absorption and extracted carbon by the Walkley-Black wet combustion method.

Mineralogy of the clay fraction less than 2 microns was determined by X-ray diffraction. Peak heights at 18-, 14-, 7.2-, and 4.31-angstrom positions represent montmorillonite, interstratified expandable vermiculite or 14-angstrom intergrades, kaolinite, and quartz, respectively. Peaks were measured, summed, and normalized to give the percent of the soil minerals identified in the X-ray diffractograms. These percentage values do not indicate absolute determined quantities of soil minerals but do imply a relative distribution of minerals in a particular mineral suite. Absolute percentages would require additional knowledge of particle-size, crystallinity, unit structure substitution, and matrix problems.

Sands are the dominant particle-size fraction in practically all horizons of all pedons listed in table 17. More than 90 percent sand occurred throughout the Alpin, Lakeland, and Leon soils; to a depth of more than 1 meter in the Albany, Blanton, Bonifay, and Chaires soils; and to a depth of more than 0.5 meter in Chiefland, Tooles, Mascotte, Nutall, Pelham, and Surrency soils.

Alpin and Lakeland soils have less than 5 percent clay throughout. Clay content increased considerably within a depth of 1 meter in the Chiefland, Cowarts, Dothan, Tooles, Fuquay, Lucy, Lynchburg, Mascotte, Miccosukee, Nutall, Orangeburg, Pelham, Rains, Sapelo, Surrency, and Tifton soils. It also increased below a depth of 1 meter in the Albany, Blanton, Bonifay, Chaires, Plummer, and Troup soils. Since there is a general tendency for clays to move downward with percolating water, the amount of translocated clay often reveals the state and degree of soil development.

Silt content generally ranged between 3 and 8 percent in most soils in the county; however, silt content in excess of 20 percent occurred in some horizons of the Chiefland, Lynchburg, Miccosukee, and Pelham soils. Conversely, one or more horizons with less than 2 percent silt occurred in the Chiefland, Lakeland, Leon, Mascotte, Nutall, and Surrency soils.

Fine sand dominated the sand fractions in all pedons sampled. The Alpin, Blanton, Chaires, Tooles, Leon, and Nutall soils had more than 50 percent fine sand, and some horizons of Bonifay, Chiefland, Dothan, Lakeland, Lucy, Pelham, Surrency, and Troup soils contained like amounts. The content of medium sand generally ranged between 10 and 20 percent; however, the Lakeland soil contained in excess of 30 percent medium sand, and the Chiefland, Tooles, Leon, and Nutall soils contained less than 6 percent. The content of very fine sand commonly ranged between 10 and 20 percent, coarse sand generally occurred in amounts of less than 6 percent, and the content of very coarse sand seldom exceeded 0.5 percent.

Very low hydraulic conductivity values of 5 centimeters per hour or less were recorded throughout the Lynchburg and Surrency soils, and values of 1 centimeter per hour or less were recorded for subsoil horizons of the Albany, Blanton, Chaires, Chiefland, Cowarts, Dothan, Fuquay, Lucy, Lynchburg, Mascotte, Sapelo, Surrency, Tifton, and Troup soils. Design and function of septic tank absorption fields are affected by such low hydraulic conductivity values. The Chaires, Leon, Mascotte, and Sapelo soils have an organic-enhanced spodic horizon that has hydraulic conductivity values of less than 5 centimeters per hour.

Available water capacity for plants can be estimated from bulk density and water content data. Generally, excessively sandy soils, such as the Alpin and Lakeland soils and the upper part of the Blanton, Lucy, and Troup soils, have low content of organic matter and low available water capacity. Droughtiness is a common characteristic of these sandy soils, particularly those that are moderately well drained, well drained, or excessively drained. The available water is high in the Dothan, Lynchburg, Orangeburg, and Tifton soils.

The chemical soil properties, as presented in table 18, show that a low amount of extractable bases is in most soils in Jefferson County. The Alpin, Lakeland, Mascotte, Pelham, Plummer, and Sapelo soils contain less than 1 milliequivalent per 100 grams extractable bases throughout. Only one horizon of the Blanton, Chaires, Fuquay, Leon, and Lynchburg soils have extractable bases in excess of 1 milliequivalent per 100 grams. Values of less than 5 milliequivalents per 100 grams commonly occurred in most other soils. The Chaires, Chiefland, Tooles, Nutall, Orangeburg, and Rains soils have more than 5 milliequivalents per 100 grams extractable bases in some horizons. The mild, humid climate in Jefferson County results in depletion of basic soil cations (calcium, magnesium, sodium, and potassium) through leaching.

Calcium is the dominant base in the soils in Jefferson County. Amounts range from 0.01 to 32.50 milliequivalents per 100 grams. The Chiefland, Orangeburg, Rains, and Surrency soils had more than 1 milliequivalent per 100 grams of magnesium in some horizons. A lower content of magnesium was detectable throughout all other soils in the county. Sodium generally occurred in amounts of less than 0.05 milliequivalents per 100 grams. Most Jefferson County soils have very low content of potassium. The Orangeburg soils have more than 0.5 milliequivalents per 100 grams of potassium in one horizon. Potassium was not detectable in the Alpin, Blanton, Chaires, Chiefland, Tooles, Leon, Mascotte, Nutall, Plummer, Sapelo, and Surrency soils.

Values for exchange capacity, an indication of plant nutrient capacity, exceeded 10 milliequivalents per 100 grams in the surface horizon of Tooles, Lakeland, Leon, Lynchburg, Miccosukee, Nutall, Orangeburg, Pelham, Plummer, Rains, Sapelo, and Tifton soils. The cation-exchange capacity exceeded 10 milliequivalents per 100 grams in at least one horizon below the surface horizon in the Albany, Bonifay, Chaires, Chiefland, Tooles, Leon, Mascotte, Miccosukee, Nutall, Orangeburg, Rains, Sapelo, Surrency, and Tifton soils. Soils that have low cation-exchange capacities in the surface horizon, such as the Chiefland soils, require only small amounts of lime to significantly alter the base status and soil reaction in the upper horizons. Generally, soils of low inherent soil fertility are associated with low values for extractable bases and low cation-exchange capacities. Fertile soils are associated with high values for extractable bases, high base saturation values, and high cation-exchange capacities.

The content of organic carbon was more than 2 percent only in the surface horizon of the Leon, Lynchburg, Miccosukee, Nutall, Orangeburg, Pelham, Plummer, Rains, Sapelo, and Tooles soils. It was more than 2 percent in the spodic horizon of the Sapelo soils. The content of organic carbon was less than 2 percent throughout all soils sampled except the Miccosukee soils. The organic carbon content decreased rapidly with increased depth in all soils except the Chaires, Leon, Mascotte, and Sapelo soils, which have Bh horizons that contain enhanced amounts of organic carbon. Since the content of organic carbon is directly related to the soil nutrient and water retention capacity of sandy soils, conservation practices that conserve and maintain organic carbon content are desirable.

Electrical conductivity values were generally very low, exceeding 0.1 millimhos per centimeter only in one horizon of the Chiefland soil. The data indicate that the soluble salt content of soils sampled in Jefferson County, with exception of the immediate coastal areas, are insufficient to detrimentally affect the growth of salt-sensitive plants.

Soil reaction in water generally ranged between pH 4.5 and 6.0; however, reactions in excess of 7.0 occurred in deeper horizons of the Chiefland, Nutall, and Tooles soils. With few exceptions, soil reaction was 0.5 to 1.2 pH units lower in calcium chloride and potassium chloride than in water. Maximum plant nutrient availability is generally attained when soil reaction is between pH 6.5 and 7.5; however, under Florida conditions, maintaining soil reaction above pH 6.5 is not economically feasible for most agricultural production purposes.

Sodium pyrophosphate extractable iron did not exceed 0.01 percent in the Bh horizon of the Chaires, Leon, Mascotte, and Sapelo soils. The ratio of pyrophosphate extractable carbon and aluminum to clay in the Chaires, Leon, Mascotte, and Sapelo soils was sufficient to meet the chemical criteria for spodic horizons.

Citrate-dithionite extractable iron in the argillic horizon of Ultisols was generally less than 1 percent; however, values exceeding 2 percent were recorded for deeper horizons of the Orangeburg and Tifton soils. The values in the Bh horizon ranged from 0.02 percent in the Chaires and Leon soils to 0.04 percent in the Sapelo soil. Aluminum extracted by citrate-dithionite from the Bt horizon ranges from 0.03 percent in the Plummer soil to 1.75 percent in the Bonifay soil. Amounts of iron and aluminum in the soils of Jefferson County are not sufficient to detrimentally affect phosphorus availability.

Sand fractions of 2 to 0.05 millimeters were siliceous with quartz overwhelmingly dominant in all soils. Small amounts of heavy minerals occurred in most horizons with the greatest concentration in the very fine sand fraction. No weatherable minerals were observed. Crystalline mineral components of the clay fraction of less than 0.002 millimeters are reported in table 19 for major horizons of the soils sampled. The clay mineralogical suite was composed of montmorillonite, a 14-angstrom intergrade, kaolinite, and quartz.

Montmorillonite occurred in about two-thirds of the soils sampled, but detectable amounts were not in the Alpin, Bonifay, Cowarts, Dothan, Lakeland, Lynchburg, Orangeburg, and Tifton soils. In most pedons, the clay fraction was dominated by 14-angstrom intergrade minerals and kaolinite. The 14-angstrom intergrade minerals occurred in all soils, but detectable amounts were not in all horizons of the Leon, Mascotte, Sapelo, and Tooles soils. Kaolinite occurred throughout all soils sampled. Quartz was in all soils, but detectable amounts were not in all horizons of the Bonifay and Cowarts soils.

Montmorillonite appears to have been inherited by Jefferson County soils and is probably the least stable mineral component in the present acidic environment. Relatively large amounts of montmorillonitic clays are in the subsoil of the Chiefland, Nutall, Sapelo, and Tooles soils. Considerable volume changes can result from shrinkage when dry and swelling when wet. The occurrence of relatively large amounts of 14-angstrom intergrades and the general tendency for these minerals to decrease as soil depth increases suggest that the 14-angstrom intergrade minerals are among the most stable species in the present weathering environment. The general tendency for kaolinite to increase as soil depth increases indicates that this mineral species is less stable than the 14-angstrom intergrades in the severe weathering environment near the soil surface. Clay-sized quartz has primarily resulted from decrements of the silt fraction. Soils dominated by montmorillonite and 14-angstrom intergrades have a higher cation-exchange capacity and retain more plant nutrients than soils dominated by kaolinite or quartz.

Engineering Index Test Data

Table 20 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by the Soils Laboratory, Florida Department of Transportation, Bureau of Materials and Research.

These tests were made to help evaluate the soils for engineering purposes. The classifications given are based on data obtained by mechanical analysis and by tests to determine liquid limits and plastic limits.

The mechanical analyses were made by combined sieve and hydrometer methods. In this method, the various grain-sized fractions are calculated on the basis of all the material in the soil sample, including that coarser than 2 millimeters in diameter. The mechanical analyses used in this method should not be used in naming textural classes of soils.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(11)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is 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 development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plain, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, acid, mesic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series. An example is the Bibb series, which is a member of the coarse-loamy, siliceous, acid, thermic family of Typic Fluvaquents.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (12)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (11)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Albany Series

The Albany series consists of somewhat poorly drained, nearly level soils that formed in deposits of sandy and loamy marine sediments of the Coastal Plain. The soils are on low knolls on uplands and flatwoods. A seasonal high water table is within a depth of 12 to 30 inches for 2 to 4 months in most years. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Paleudults.

Albany soils are associated with Blanton, Fuquay, Pelham, Plummer, and Troup soils. Blanton soils are moderately well drained and are in slightly higher positions on the landscape than Albany soils. Fuquay and Troup soils are well drained. Pelham and Plummer soils are in lower positions and are poorly drained.

Typical pedon of Albany sand; in a cultivated field, 0.5 mile west of Aucilla River, 1,000 feet north and 2,500 feet east of the southeast corner of sec. 5, T. 1 S., R. 6 E.

Ap—0 to 8 inches; dark gray (10YR 4/1) sand; weak very fine granular structure; very friable; few fine roots; very strongly acid; abrupt smooth boundary.

E1—8 to 21 inches; brown (10YR 5/3) sand; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

E2—21 to 43 inches; pale brown (10YR 6/3) sand; few medium prominent light gray (2.5Y 7/2) mottles and few medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid; clear wavy boundary.

E3—43 to 55 inches; white (2.5Y 8/2) sand; few medium prominent very pale brown (10YR 7/4) and yellow (10YR 7/6) mottles; single grained; loose; very strongly acid; clear wavy boundary.

Bt—55 to 60 inches; very pale brown (10YR 7/3) sandy loam; common medium and coarse prominent yellowish brown (10YR 5/8) mottles and common medium faint light gray (10YR 7/2) mottles; moderate fine and medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Btg—60 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam; common medium prominent yellowish brown (10YR 5/6) and yellow (10YR 7/6) mottles; moderate fine and medium subangular blocky structure; firm; very strongly acid.

Albany soils are extremely acid to slightly acid in the A or Ap horizon and slightly acid to very strongly acid in the E and Bt horizons. The solum is more than 80 inches thick.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. The texture is fine sand, sand, loamy sand, or loamy fine sand.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 2 to 6. It has few to many mottles in shades of brown, yellow, or gray. Total thickness of the A and E horizons is more than 40 inches. The texture is fine sand, sand, or loamy sand.

The Bt horizon has hue of 10YR or 2.5Y, value of 4 to 8, and chroma of 3 to 8. It has few to common mottles in shades of brown, yellow, and gray. The Btg horizon is gleyed. It has hue of 2.5Y, value of 6, and chroma of 2. The texture of the Bt and Btg horizons is sandy loam or sandy clay loam.

Alpin Series

The Alpin series consists of excessively drained, nearly level to gently rolling soils that formed in thick beds of sandy eolian or marine deposits on the Coastal Plain. The soils are on summits, shoulders, and back slopes of uplands. They do not have a high water table within a depth of 80 inches. Slopes range from 0 to 8 percent. The soils are thermic, coated Typic Quartzipsamments.

Alpin soils are associated with Blanton, Lakeland, Ortega, and Troup soils. Blanton and Troup soils have an argillic horizon between depths of 40 and 80 inches. Blanton soils are moderately well drained, and Troup soils are well drained. Lakeland soils do not have lamellae. Ortega soils do not have lamellae and are moderately well drained.

Typical pedon of Alpin fine sand, 0 to 5 percent slopes; in a wooded area, about 0.5 mile south of U.S. Highway 27 and 0.5 mile east of the Leon County line, NE1/4SW1/4 sec. 18, T. 1 S., R. 3 E.

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

E1—4 to 20 inches; yellowish brown (10YR 5/4) fine sand; single grained; loose; common fine and medium roots; charcoal chips; strongly acid; clear wavy boundary.

E2—20 to 40 inches; brownish yellow (10YR 6/6) fine sand; single grained; loose; few fine roots; many fine charcoal chips; slightly acid; gradual wavy boundary.

E3—40 to 47 inches; yellow (10YR 7/6) fine sand; single grained; loose; discontinuous brownish yellow (10YR 6/8) loamy fine sand lamellae 1 to 2 cm thick; medium acid; clear wavy boundary.

E/B—47 to 80 inches; very pale brown (10YR 8/3) fine sand (E); single grained; loose; uncoated sand grains; common strong brown (7.5YR 5/8) loamy fine sand lamellae (B) about 1 to 2 cm thick; lamellae discontinuous in length; strongly acid.

Alpin soils are very strongly acid to slightly acid throughout. The solum is at least 80 inches thick. Depth to lamellae ranges from 40 to 78 inches. The lamellae does not exceed 15 centimeters in total thickness.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. The texture is sand or fine sand.

The E horizon has hue of 10YR, value of 5, and chroma of 4 to 6, or value of 6 or 7 and chroma of 3 to 8. Lamellae are commonly in the lower part of this horizon. It is fine sandy loam, loamy sand, or fine sand 1 to 2 centimeters thick. The lamellae has hue of 10YR, value of 5 or 6, and chroma of 7 or 8. Some pedons do not have lamellae. The texture of the E horizon is fine sand or sand.

The E part of the E/B horizon has hue of 10YR, value of 7 or 8, and chroma of 2 to 5. The texture is fine sand or sand. The B part of the E/B horizon is loamy fine sand, fine sandy loam or loamy sand lamellae 1 to 2 centimeters thick. It has hue of 7.5YR, value of 5, and chroma of 6 or 8; and hue of 10YR, value of 5, and chroma of 4 to 7.

A Bt horizon is in some pedons below a depth of 2 meters and is not diagnostic for the series.

Bayvi Series

The Bayvi series consists of very poorly drained, nearly level soils that formed in marine sediment in coastal tidal marshes. The soils are flooded daily by normal high tides. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Cumulic Haplaquolls.

Bayvi soils are associated with Tooles, Nutall, and Chaires soils. These soils are in positions adjacent to the tidal marsh, and they have an argillic horizon within a depth of 80 inches. Nutall and Tooles soils have limestone bedrock between depths of 20 and 60 inches. Chaires soils also have a spodic horizon.

Typical pedon of Bayvi muck; in coastal tidal marsh, 1,000 feet east and 900 feet north of the southwest corner of sec. 19, T. 4 S., R. 3 E.

Oa—0 to 5 inches; black (10YR 2/1) muck; about 30 percent fiber unrubbed, less than 5 percent fiber rubbed; massive; sticky; many fine and medium roots; neutral wet; gradual wavy boundary.

A1—5 to 17 inches; black (10YR 2/1) mucky loamy sand; massive; friable; slightly sticky, many fine and medium roots; neutral (wet); clear wavy boundary.

A2—17 to 31 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; many medium and fine roots; slightly acid (wet); gradual wavy boundary.

C1—31 to 53 inches; grayish brown (10YR 5/2) sand; few to common clean sand grains; single grained; loose; common fine and medium roots; slightly acid (wet); gradual wavy boundary.

C2—53 to 64 inches; gray (10YR 5/1) sand; few to common clean sand grains; single grained; loose; few fine roots; slightly acid (wet); gradual wavy boundary.

C3—64 to 80 inches; gray (10YR 6/1) sand; single grained; loose; slightly acid (wet).

In the natural wet state, Bayvi soils range from medium acid to neutral in the Oa horizon and from slightly acid to moderately alkaline in the A and C horizons. The Oa horizon is up to 7 inches thick. Some pedons do not have an Oa horizon.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2. The texture is mucky loamy sand, mucky sand, sand, or loamy sand. The A horizon is 24 to 48 inches thick.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, chroma of 1 or 2. The texture is sand or loamy fine sand.

Bibb Series

The Bibb series consists of nearly level, poorly drained soils that formed in stratified sandy and loamy sediments on flood plains of streams on the Coastal Plain. The soils are in small to large drainageways and on flood plains, and they are subject to frequent flooding. The high water table is within 12 inches of the surface for 6 months or more in most years. Slopes range from 0 to 2 percent. The soils are coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

Bibb soils are associated with Albany, Chaires, Plummer, and Rutlege soils. Albany soils are somewhat poorly drained and have an argillic horizon. Plummer and Chaires soils also have an argillic horizon. Rutlege soils are sandy throughout. They are very poorly drained and have an umbric epipedon more than 10 inches thick.

Typical pedon of Bibb loamy sand, frequently flooded; near the intersection of U.S. Highway 27 and Burnt Mill Creek, about 0.75 mile east of the Jefferson County line, SW1/4SE1/4 sec. 7, T. 1 S., R. 3 E.

A—0 to 3 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

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

Cg—10 to 25 inches; dark grayish brown (2.5Y 4/2) sandy loam; common fine prominent yellowish brown (10YR 5/6) mottles; massive; sticky; few fine roots; strongly acid; gradual wavy boundary.

Cg2—25 to 60 inches; grayish brown (2.5Y 5/2) sandy loam; common medium prominent yellowish brown (10YR 5/8) mottles; massive; sticky; strongly acid; clear wavy boundary.

Cg3—60 to 80 inches; light brownish gray (2.5Y 6/2) stratified loamy sand and sand lenses; common medium prominent yellowish brown (10YR 5/8) mottles and few fine prominent yellowish brown (10YR 5/6) mottles; slightly sticky; strongly acid.

Bibb soils are strongly acid or very strongly acid throughout.

The A horizon has hue of 10YR or 7.5YR, value of 2 to 5, and chroma of 1 or 2. The texture is sand, loamy sand, fine sandy loam, or sandy loam. The A horizon ranges from 7 to 17 inches thick.

The Cg horizon has hue of 2.5Y or 10YR, value of 4 to 7, and chroma of 2 or less. It has few to common mottles in shades of brown, red, and yellow. The texture is sandy loam, fine sandy loam, or loam, or stratified layers of sand, loamy sand, or loamy fine sand.

Blanton Series

The Blanton series consists of moderately well drained, nearly level to gently sloping soils that formed in sandy and loamy marine or eolian deposits of the Coastal Plain. The soils are on low knolls, foot slopes, and toe slopes on uplands. A perched high water table is above the subsoil during wet seasons and below a depth of 72 inches throughout the remainder of the year. Slopes range from 0 to 5 percent. The soils are loamy, siliceous, thermic Grossarenic Paleudults.

Blanton soils are associated with Albany, Lucy, and Troup soils. Albany soils are somewhat poorly drained. Lucy soils are well drained and have sandy A and E horizons 20 to 40 inches thick. Troup soils are well drained and are in higher positions on the landscape than the Blanton soils.

Typical pedon of Blanton fine sand, 0 to 5 percent slopes; in a pasture, 3,000 feet south of U.S. Highway 90 and 200 feet east of Old Tung Grove Road, NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

E1—7 to 15 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

E2—5 to 30 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

E3—30 to 38 inches; brownish yellow (10YR 6/6) fine sand; white (10YR 8/1) uncoated sand grains; single grained; loose; strongly acid; clear wavy boundary.

E4—38 to 63 inches; very pale brown (10YR 7/4) fine sand; white (10YR 8/1) uncoated sand grains; single grained; loose; strongly acid; clear smooth boundary.

Bt—63 to 74 inches; brownish yellow (10YR 6/6) sandy clay loam; common fine prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg—74 to 80 inches; light gray (10YR 7/2) sandy clay; common moderate prominent brownish yellow (10YR 6/6) mottles, common moderate prominent strong brown (7.5YR 5/8) mottles, and few fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid.

Blanton soils range from very strongly acid to medium acid in the surface and subsurface horizons and are very strongly acid or strongly acid in the Bt horizon. The solum ranges in thickness from 60 to more than 80 inches.

The Ap or A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3. The texture is sand, fine sand, loamy sand, or loamy fine sand. The A horizon is 6 to 14 inches thick. It is less than 10 inches thick where the value is 3.5 or less.

The E horizon has hue of 10YR, value of 5, and chroma of 4 to 8, or value of 6 or 7 and chroma of 1 to 8. Most pedons have many pockets of white uncoated sand grains. Mottles in shades of brown or yellow are common in the lower part of the E horizon. The texture is fine sand, sand, or loamy fine sand. The E horizon can be 40 to 73 inches thick, but it is most commonly 40 to 65 inches thick.

The Bt horizon has hue of 10YR, value of 5, and chroma of 6 or 8; or value of 6 and chroma of 3 to 7 with few to common mottles in shades of brown, yellow, or red. Some pedons have 2 chroma mottles in this horizon. The texture is sandy clay loam, sandy loam, or fine sandy loam.

The Btg horizon has hue of 2.5Y or 10YR, value of 6 or 7, and chroma of 2. It has mottles in shades of yellow, red, and brown. This horizon extends to a depth of more than 80 inches. The texture is sandy clay loam, sandy loam, or fine sandy loam; sandy clay is in the lower part of this horizon in some pedons.

Bonifay Series

The Bonifay series consists of well drained, nearly level to gently undulating soils that formed in thick deposits of sandy and loamy marine sediments of the Coastal Plain. The soils are on summits and foot slopes on uplands. The high water table is perched above the subsoil briefly during the wet seasons. Slopes range from 0 to 5 percent. The soils are loamy, siliceous, thermic Grossarenic Plinthic Paleudults.

Bonifay soils are associated with Albany, Blanton, Fuquay, and Troup soils. Albany soils are somewhat poorly drained and are in lower positions on the landscape than Bonifay soils. Blanton soils are moderately well drained. Fuquay soils have less than 40 inches of sand above the subsoil. Troup soils do not have more than 5 percent plinthite.

Typical pedon of Bonifay fine sand, 0 to 5 percent slopes; in a pasture, 0.5 mile north of Interstate 10 and 0.75 mile west of County Road 59, NW1/4NW1/4 sec. 16, T. 1 N., R. 3 E.

Ap—0 to 8 inches; dark brown (10YR 4/3) fine sand; weak fine granular structure; very friable; many fine and few medium roots; very strongly acid; abrupt smooth boundary.

E1—8 to 18 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; common fine roots;

pockets of dark brown (10YR 3/3) fine sand and bits of charcoal; strongly acid; clear wavy boundary.

E2—18 to 30 inches; yellowish brown (10YR 5/8) fine sand; single grained; loose; few fine roots; few pockets of white (10YR 8/1) sand stripping and dark yellowish brown (10YR 4/6) organic stained sand grains; strongly acid; gradual wavy boundary.

E3—30 to 48 inches; yellowish brown (10YR 5/8) fine sand; single grained; loose; about 5 percent ironstone nodules; many fine pockets of white (10YR 8/1) uncoated sand grains; strongly acid; clear wavy boundary.

Bt—48 to 52 inches; yellowish brown (10YR 5/6) fine sandy loam; few fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; few ironstone nodules; strongly acid; gradual wavy boundary.

Btv—52 to 59 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; about 15 percent red (2.5YR 4/8) plinthite nodules; strongly acid; clear wavy boundary.

B't—59 to 80 inches; reticulately mottled red (2.5YR 4/8), strong brown (7.5YR 5/8), white (10YR 8/2), yellowish brown (10YR 5/8), and red (10YR 4/6) sandy clay; strong medium subangular blocky structure; firm; very strongly acid.

Bonifay soils are strongly acid or very strongly acid throughout except where lime has been added. The solum ranges in thickness from 60 to 80 inches or more. Depth to 5 percent or more plinthite ranges from 45 to 60 inches.

The Ap or A horizon has hue of 10YR, value of 3, and chroma of 2, or value of 4 or 5 and chroma of 1 to 3. It is 5 to 8 inches thick.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 8. Many pockets of uncoated sand grains are in this horizon. The E horizon is 37 to 49 inches thick. Combined thickness of the A and E horizons is more than 40 inches. The texture of the A and E horizons is fine sand, sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 10YR, value of 5 or 6, chroma of 4 to 8. It has mottles in shades of red and brown. The texture is fine sandy loam, sandy loam, or sandy clay loam.

The Btv horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. The texture is fine sandy loam, sandy loam, or sandy clay loam. Plinthite ranges from 5 to 15 percent.

The B't horizon does not have matrix colors and is reticulately mottled in shades of red, brown, yellow, or white. The texture ranges from sandy clay loam to sandy clay.

Byars Series

The Byars series consists of very poorly drained, nearly level soils that formed in loamy and clayey marine or fluvial sediments of the Coastal Plain. The soils are on broad flood plains of the Miccosukee Lake Drainage Basin. A high water table normally ranges from 36 inches above the surface to 18 inches below. Byars soils are normally flooded for a major part of the year. Slopes range from 0 to 1 percent. The soils are clayey, kaolinitic, thermic Umbric Paleaquults.

Byars soils are associated with Pelham, Plummer, Rains, Surrency, Pamlico, Dorovan, Leefield, and Lynchburg soils. Pelham, Plummer, Rains, Leefield, and Lynchburg soils do not have an umbric epipedon. Pamlico and Dorovan soils are organic. Surrency soils are in the loamy family.

Typical pedon of Byars fine sandy loam, frequently flooded; in a gum, pine, and cypress stand on a flood plain northwest of Monticello, SW1/4NE1/4 sec. 2, T. 2 N., R. 4. E.

A—0 to 12 inches; very dark gray (10YR 3/1) fine sandy loam; many fine distinct yellowish brown mottles; weak fine granular structure; very friable; few coarse and many fine and medium roots; strongly acid; clear wavy boundary.

Btg1—12 to 45 inches; gray (10YR 6/1) sandy clay; many medium distinct strong brown mottles; moderate coarse subangular blocky structure; firm; few medium roots; strongly acid; abrupt wavy boundary.

Btg2—45 to 50 inches; light gray (10YR 7/1) sandy clay; many medium distinct brownish yellow (10YR 6/6) mottles; moderate coarse subangular blocky structure; firm; strongly acid; gradual wavy boundary.

Btg3—50 to 65 inches; light gray (10YR 7/1) sandy clay; many medium distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) mottles; moderate coarse subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

Cg—65 to 80 inches; light gray (10YR 7/1) sandy loam; many medium distinct brownish yellow and strong brown mottles; weak coarse subangular blocky structure; friable; very strongly acid.

Byars soils are strongly acid or very strongly acid throughout. The solum is more than 60 inches thick.

The A horizon contains 2 to 8 percent organic matter. It has hue of 10YR, value of 2 or 3, and chroma of 1. The texture is fine sandy loam, loam, or sandy loam. The A horizon is 10 to 16 inches thick.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1. Mottles are common to many in shades of yellow and brown. The texture is sandy clay, clay, or sandy clay loam that has more than 35 percent clay in the particle-size control section.

The Cg horizon has hue of 10YR, value of 6 or 7, and chroma of 1. The texture ranges from sandy loam to clay. Some pedons do not have a Cg horizon.

Chaires Series

The Chaires series consists of poorly drained, nearly level soils that formed in sandy and loamy marine sediments of the Coastal Plain. The soils are on broad, nearly level flatwoods. A seasonal high water table is within a depth of 10 inches for 1 to 3 months and within a depth of 10 to 40 inches for 6 months or more in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Alfic Haplaquods.

Chaires soils are associated with Leon and Surrency soils. Leon soils do not have an argillic horizon. Surrency soils are very poorly drained and do not have a spodic horizon.

Typical pedon of Chaires fine sand; 0.5 mile southeast of County Road 257, 6 miles south of Lamont, NW1/4NE1/4 sec. 29, T. 2 S., R. 5 E.

A—0 to 8 inches; very dark gray (10YR 3/1) fine sand; single grained; loose; many fine and medium roots and few coarse roots; many clean sand grains; very strongly acid; clear wavy boundary.

E—8 to 29 inches; white (10YR 8/1) fine sand; many fine prominent dark brown (10YR 3/3) organic stained sand grains along root channels; single grained; loose; many fine and medium roots and few coarse roots; strongly acid; abrupt wavy boundary.

Bh1—29 to 34 inches; very dark brown (10YR 2/2) fine sand; weak fine subangular blocky structure; friable; weakly cemented; common fine and few medium roots; very strongly acid; clear wavy boundary.

Bh2—34 to 48 inches; very dark grayish brown (10YR 3/2) fine sand; single grained; loose; few fine roots; sand grains coated with colloidal organic matter; 10 percent strongly cemented organic nodules; very strongly acid; clear wavy boundary.

Bh3—48 to 52 inches; very dark brown (10YR 2/2) loamy fine sand; weak medium subangular blocky structure; friable; few fine roots; weakly cemented in the upper part; sand grains coated with colloidal organic matter; very strongly acid; abrupt wavy boundary.

Btg1—52 to 55 inches; light olive gray (5Y 6/2) fine sandy loam; moderate medium subangular blocky structure; firm; few fine roots; very strongly acid; clear wavy boundary.

Btg2—55 to 80 inches; light greenish gray (5GY 7/1) fine sandy loam; common medium prominent very dark grayish brown (10YR 3/2) mottles and few medium prominent strong brown (7.5YR 5/8) mottles; massive; firm; few fine roots in the upper part; very strongly acid.

Chaires soils range from extremely acid to strongly acid in the A and Bh horizons and from very strongly acid to neutral in the Btg horizons. The solum is 80 inches or more thick. Total thickness of the A and E horizons is less than 30 inches.

The Ap or A horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 or 2. It ranges from 4 to 13 inches thick. Where value is less than 3.5, this horizon is less than 10 inches thick. The texture is sand or fine sand.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. Some pedons have organic staining of sand grains in this horizon. The texture is sand or fine sand.

The Bh horizon has hue of 10YR, value of 2, and chroma of 1 or 2, value of 3 and chroma of 2 or 3, or value of 4 and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 4. Consistence is friable or weakly cemented. The texture is fine sand, sand, or loamy fine sand.

Some pedons have an E' horizon. It has hue of 10YR, value of 5 to 7, and chroma of 2 to 4. The texture is sand or fine sand.

Some pedons have an Bh' horizon. It has colors similar to those of the Bh horizon and is fine sand, sand, or loamy fine sand.

The Btg horizon has hue of 10YR, value of 6, and chroma of 1 or 2; hue of 5Y, value of 5 to 7, and chroma of 1 or 2; or hue of 5GY, value of 5 to 7, and chroma of 1 or 2. The texture is sandy loam, fine sandy loam, or sandy clay loam. The lower part of the Btg horizon in some pedons is sandy clay that has few to common mottles in shades of red, brown, or gray.

Chiefland Series

The Chiefland series consists of moderately well drained, nearly level soils that formed on the lower part of the Coastal Plain in beds of marine sediment underlain by limestone. The seasonal high water table is between depths of 50 and 72 inches after periods of heavy rain in the nonflooded areas of Chiefland. In the area of Chiefland frequently flooded, the seasonal high water is above the surface for 2 months or less and within a depth of 50 inches for an additional month after flood water recedes. It is between depths of 50 and 72 inches the remainder of the year. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Arenic Hapludalfs.

Chiefland soils are associated with Chaires, Nutall, and Tooles soils. The associated soils are poorly drained. Chaires soils have a spodic horizon, and Nutall soils have an argillic horizon within a depth of 20 inches.

Typical pedon of Chiefland fine sand, in an area of Chiefland-Chiefland, frequently flooded, fine sands; in planted pines, 2.5 miles east of Goose Pasture, 0.5 mile north of Good Pasture Road, SW1/4SW1/4NE1/4 sec. 21, T. 3 S., R. 4 E.

Ap—0 to 7 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; many uncoated sand grains; many fine, medium, and coarse roots; medium acid; clear wavy boundary.

E—7 to 25 inches; light gray (10YR 7/2) fine sand; single grained; loose; common medium roots; medium acid; clear wavy boundary.

Bt—25 to 32 inches; brownish yellow (10YR 6/6) fine sandy loam; weak medium subangular blocky structure; few medium and coarse roots; neutral; clear wavy boundary.

IICr—32 to 49 inches; yellow (10YR 8/6) soft weathered limestone.

R—49 inches; limestone bedrock.

Chiefland soils range from strongly acid to slightly acid in the A and E horizons and from slightly acid to moderately alkaline in the Bt horizon. The solum over soft limestone ranges from 30 to 60 inches thick. Solution holes in which the solum extends to a depth of more than 60 inches are in about 15 to 30 percent of the pedons. Limestone boulders are on the surface of some pedons.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is 5 to 12 inches thick.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 2 to 6. Some pedons have brown or yellow mottles in the lower part of this horizon. The texture of the A and E horizons is sand or fine sand.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 to 8. Some pedons have mottles. The texture is sandy loam, fine sandy loam, or sandy clay loam. In some pedons, the lower part of this horizon is about 3 to 10 percent limestone coarse fragments.

The Cr horizon is soft limestone interspersed with solution holes filled with Bt material. The surface of this limestone is irregular. The limestone is soft enough to be dug with light power equipment.

The Chiefland soil in Jefferson County are taxadjuncts to the series because the soils are moderately well drained; the soils of the series are defined as well drained.

Chipley Series

The Chipley series consists of somewhat poorly drained or moderately well drained, nearly level to gently sloping soils that formed in thick deposits of sandy marine sediment of the Coastal Plain. The soils are on low knolls on the flatwoods and low uplands. A seasonal high water table is within a depth of 20 to 40 inches for 2 to 4 months, and within a depth of 30 to 72 inches for the rest of the year. Slopes range from 0 to 5 percent. The soils are thermic, coated Aquic Quartzipsamments.

Chipley soils are associated with Alpin and Ortega soils. Alpin soils are excessively drained and have lamellae below a depth of 40 inches. Ortega soils are moderately well drained and have uncoated sand grains.

Typical pedon of Chipley fine sand, 0 to 5 percent slopes; in planted pines, 1,600 feet west and 250 feet south of the northeast corner of sec. 18, T. 1 S., R. 3 E.

Ap—0 to 4 inches; very dark gray (10YR 3/1) fine sand; weak medium and fine granular structure; very friable; few coarse, common medium, and many fine roots; very strongly acid; abrupt wavy boundary.

A—4 to 12 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; few coarse and common fine and very fine roots; very strongly acid; clear wavy boundary.

C1—12 to 32 inches; yellowish brown (10YR 5/4) fine sand; single grained; loose; few medium and common fine and very fine roots; strongly acid; gradual wavy boundary.

C2—32 to 39 inches; light yellowish brown (10YR 6/4) fine sand; few fine prominent yellowish brown (10YR 5/8) mottles and common medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; many fine and very fine roots; strongly acid; gradual wavy boundary.

C3—39 to 56 inches; very pale brown (10YR 7/4) fine sand; common medium prominent yellowish brown (10YR 5/8) mottles and few fine prominent reddish yellow (7.5YR 6/8) mottles; single grained; loose; few very fine roots; strongly acid; gradual wavy boundary.

C4—56 to 72 inches; very pale brown (10YR 7/3) fine sand; common fine prominent strong brown (7.5YR 5/6) mottles and many medium prominent reddish yellow (7.5YR 6/8) mottles; single grained; loose; few very fine roots; medium acid; gradual wavy boundary.

C5g—72 to 80 inches; light gray (10YR 7/2) fine sand; single grained; loose; medium acid.

Chipley soils are sand or fine sand to a depth of at least 80 inches. They range from extremely acid to medium acid in the A horizon and from very strongly acid to slightly acid in the C horizon.

The Ap and A horizons have hue of 10YR, value of 3 to 5, and chroma of 1 or 2. They range from 4 to 15 inches thick. Where value is less than 3.5, they are less than 10 inches thick.

The C horizon has hue of 10YR, value of 7, and chroma of 1 to 8, value of 5 or 6, and chroma of 2 to 8, or value of 4 and chroma of 3; hue 2.5Y, value of 6 to 8, and chroma of 4; hue of 7.5YR, value of 5, and chroma of 2 to 6; or hue of 5Y, value of 7, and chroma of 3. Common to many gray mottles or yellowish red or reddish yellow segregated iron mottles are at a depth of

24 to 40 inches. Some pedons have a few gray mottles within 20 inches of the surface.

Cowarts Series

The Cowarts series consists of well drained, gently undulating to gently rolling soils that formed in loamy marine sediment of the Coastal Plain. The soils are on shoulders and summits of uplands. The high water table is below a depth of 80 inches throughout the year. Slopes range from 2 to 8 percent. The soils are fine-loamy, siliceous, thermic Typic Hapludults.

Cowarts soils are associated with Dothan, Fuquay, Leefield, and Orangeburg soils. Fuquay and Leefield soils have combined A and E horizons 20 to 40 inches thick and contain more than 5 percent plinthite. The Leefield soils are somewhat poorly drained. The solum of the Orangeburg and Dothan soils is more than 60 inches thick, and the Dothan soils contain more than 5 percent plinthite.

Typical pedon of Cowarts loamy fine sand, 5 to 8 percent slopes, eroded; in a field, 300 feet north and 70 feet west of the southeast corner of sec. 12, T. 2 N., R. 5 E.

Ap—0 to 4 inches; dark brown (10YR 3/3) loamy fine sand; weak fine and medium granular structure; very friable; few medium and common very fine and fine roots; slightly acid; abrupt smooth boundary.

BE—4 to 8 inches; strong brown (7.5YR 5/6) fine sandy loam; weak fine subangular blocky structure; very friable; few medium and common very fine and fine roots; very strongly acid; abrupt wavy boundary.

Bt1—8 to 15 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate fine and medium subangular blocky structure; friable; common fine and very fine roots; very strongly acid; clear wavy boundary.

Bt2—15 to 29 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; 2 percent plinthite and iron nodules; very strongly acid; gradual wavy boundary.

Bt3—29 to 40 inches; strong brown (7.5YR 5/6) sandy clay loam; few reticulate very pale brown (10YR 8/3) and brownish yellow (10YR 6/6) mottles; strong and moderate medium subangular blocky structure; firm; few fine and common very fine roots; very strongly acid; clear wavy boundary.

C1—40 to 45 inches; strong brown (7.5YR 5/6) sandy clay loam; reticulate brownish yellow (10YR 6/6, 6/8), very pale brown (10YR 8/3), and yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid; clear wavy boundary.

C2—45 to 57 inches; yellowish red (5YR 5/8) sandy clay loam; reticulate reddish yellow (5YR 6/8), brownish yellow (10YR 6/8), and very pale brown (10YR 8/3) mottles; massive; firm; very strongly acid; gradual wavy boundary.

C3—57 to 80 inches; mixed reticulate mottled very pale brown (01YR 7/3, 8/3), reddish yellow (7.5YR 7/6, 6/8), and red (2.5YR 5/6) sandy loam, pockets of sandy clay loam and sandy clay; massive; firm; very strongly acid.

Cowarts soils are strongly acid or very strongly acid except where the surface has been limed. The solum ranges in thickness from 20 to 40 inches.

The Ap and BE horizons have hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6. These horizons are generally 4 to 11 inches thick, but they are less than 6 inches thick if the color value, moist, is less than 3.5.

The Bt horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is fine sandy loam or sandy clay loam.

The C horizon is mottled in hue of 10YR to 10R, value of 4 to 8, and chroma of 1 to 8. The texture is loamy fine sand to sandy clay loam. Pockets and layers of coarser and finer material are common.

Dorovan Series

The Dorovan series consists of very poorly drained, nearly level soils of the Coastal Plain. They formed in highly decomposed organic material more than 51 inches thick. The soils are on level and depressional surfaces on uplands and flatwoods. The high water table is within a depth of 10 inches. It is at or above the surface for 5 to 8 months in most years. Slopes are less than 1 percent. The soils are dysic, thermic Typic Medisaprists.

Dorovan soils are associated with Pamlico, Pelham, Plummer, Surrency, Plummer flooded, and Chaires depressional soils. Pamlico soils have an organic layer 16 to 51 inches thick. Pelham, Plummer, Surrency, Plummer flooded, and Chaires depressional are mineral soils.

Typical pedon of Dorovan muck, in an area of Pamlico-Dorovan mucks; in a swamp, about 3,000 feet north of Interstate 10, SW1/4NE1/4 sec.23, T. 1 N., R. 5 E.

Oa1—0 to 4 inches; very dark brown (10YR 2/2) muck; partly decomposed roots, leaves, and grass; about 35 percent fiber unrubbed and less than 10 percent rubbed; massive; slightly sticky; extremely acid; gradual wavy boundary.

Oa2—4 to 9 inches; black (10YR 2/1) muck; partly decomposed roots and twigs; about 15 percent fiber unrubbed and less than 5 percent rubbed; massive; nonsticky; extremely acid; gradual wavy boundary.

Oa3—9 to 65 inches; black (10YR 2/1) and dark brown (7.5YR 3/2) muck; about 15 percent fiber unrubbed and less than 5 percent rubbed; massive; nonsticky; extremely acid; gradual wavy boundary.

2Cg—65 to 80 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; strongly acid.

Dorovan soils are extremely acid in the organic layers and strongly acid or very strongly acid in the 2Cg horizon.

The Oa horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 to 3. Fiber content is less than 10 percent after rubbing. Total thickness of the Oa horizon exceeds 51 inches.

The 2Cg horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. The texture is sand, loamy sand, or sandy loam.

Dothan Series

The Dothan series consists of well drained, gently undulating to gently rolling soils that formed in thick beds of loamy marine sediment of the Coastal Plain. The soils are on shoulders and summits of uplands. A perched high water table is above the subsoil very briefly during wet periods. Slopes range from 2 to 8 percent. The soils are fine-loamy, siliceous, thermic Plinthic Paleudults.

Dothan soils are associated with Fuquay, Lucy, and Orangeburg soils. Fuquay and Lucy soils have sandy A and E horizons 20 to 40 inches thick. Orangeburg soils have a redder subsoil than that of the Dothan soils.

Typical pedon of Dothan loamy fine sand, 2 to 5 percent slopes; in a wooded area, 1.5 miles south of U.S. Highway 90 and 0.6 mile west of County Road 158, NW1/4SE1/4 sec. 33, T. 2 N., R. 4 E.

Ap—0 to 9 inches; dark brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; strongly acid; abrupt wavy boundary.

Bt1—9 to 17 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few medium roots; few ironstone nodules; strongly acid; gradual wavy boundary.

Bt2—17 to 49 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few ironstone nodules; strongly acid; gradual wavy boundary.

Btv1—49 to 62 inches; yellowish brown (10YR 5/6) sandy clay loam; many medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; about 15 percent, by volume, red (2.5YR 4/8) plinthite nodules; medium acid; gradual wavy boundary.

Btv2—62 to 80 inches; reticulately mottled red (10YR 4/8), yellowish red (5YR 5/8), light gray (10YR 7/1), yellowish brown (10YR 5/8), and reddish yellow (7.5YR 6/8) sandy clay loam; strong medium subangular blocky structure; friable; about 10 percent, by volume, red (2.5YR 4/8) plinthite nodules; strongly acid.

Dothan soils are very strongly acid to medium acid except where the surface has been limed. The solum ranges in thickness from 60 to more than 80 inches. Depth to horizons that contain 5 percent or more plinthite ranges from 24 to 60 inches. Content of ironstone pebbles range from 0 to 5 percent in the A horizon and the upper part of the B horizon.

The Ap or A horizon has hue of 10YR, value of 4 to 7, and chroma of 2 or 3, or value of 6 or 7, and chroma of 4. It is 6 to 10 inches thick.

Some pedons have an E horizon. It has the same range in colors as those of the A horizon. The texture of the A and E horizons is sandy loam, fine sandy loam, loamy fine sand, or loamy sand. Combined thickness of the A and E horizons range from 10 to 18 inches.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8. The texture is sandy loam, sandy clay loam, or clay loam.

The Btv horizon has hue of 10YR, value of 5, and chroma of 4 or 6; or it is reticulately mottled. The texture is fine sandy loam, sandy clay loam, or clay loam and ranges to include sandy clay in the lower part of the horizon. The Btv horizon contains from 10 to 15 percent, by volume, plinthite.

Faceville Series

The Faceville series consists of well drained, gently undulating to rolling soils that formed in clayey marine sediment of the Coastal Plain. The soils are on summits, shoulders, and back slopes of uplands. They do not have a high water table within a depth of 80 inches. Slopes range from 2 to 12 percent. The soils are clayey, kaolinitic, thermic Typic Paleudults.

Faceville soils are associated with Dothan, Fuquay, Lucy, and Orangeburg soils. Dothan soils have more than 5 percent plinthite within a depth of 60 inches. Fuquay and Lucy soils have sandy A and E horizons 20 to 40 inches thick. Orangeburg soils have less than 35 percent clay in the control section.

Typical pedon of Faceville fine sandy loam, 2 to 5 percent slopes; in a wooded area, 2,500 feet west and 700 feet north of the southeast corner of sec. 30, T. 3 N., R. 4 E.

Ap—0 to 7 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

AB—7 to 14 inches; brown (7.5YR 4/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bt1—14 to 20 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure;

friable; few fine and medium roots; strongly acid; gradual boundary.

Bt2—20 to 38 inches; red (2.5YR 4/6) sandy clay; few medium prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

BC—38 to 80 inches; dark red (2.5YR 3/6) sandy clay; common coarse prominent brownish yellow (10YR 6/8) mottles and few coarse prominent very pale brown (10YR 7/4) mottles in the lower part; medium subangular blocky structure; firm; strongly acid.

Solum thickness ranges from 65 to 80 inches or more. Faceville soils are strongly acid or very strongly acid throughout except where the surface has been limed.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. The E or AB horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. The texture of the A and E horizons are loamy sand, loamy fine sand, sandy loam, fine sandy loam, or sandy clay loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8. The lower part of the Bt horizon in some pedons and the BC horizon have hue of 10YR and 2.5YR, value of 3, and chroma of 6. Mottles in shades of yellow, brown, and red ranges from few to common in the lower part of the Bt horizon and in the BC horizon. The texture of the Bt and the BC horizons is clay, clay loam, or sandy clay. Weighted average clay content is more than 35 percent in the particle-size control section.

Fuquay Series

The Fuquay series consists of well drained, nearly level to gently rolling soils that formed in loamy marine sediment of the Coastal Plain. The soils are on summits and foot slopes of uplands. A perched high water table is above the subsoil briefly during wet periods. Slopes range from 0 to 8 percent. The soils are loamy, siliceous, thermic Arenic Plinthic Paleudults.

Fuquay soils are associated with Dothan, Leefield, Lucy, and Orangeburg soils. Dothan and Orangeburg soils have A and E horizons with a combined thickness of less than 20 inches. Lucy soils have less than 5 percent plinthite within a depth of 35 to 60 inches. Leefield soils have mottles that have chroma of 2 in the upper part of the Bt horizon.

Typical pedon of Fuquay fine sand, 0 to 5 percent slopes; in a pasture, 1.75 miles west of County Road 59 and 50 feet north of a dirt road, SW1/4SE1/4 sec. 29, T. 1 N., R. 3 E.

Ap—0 to 7 inches; dark brown (10YR 4/3) fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

E1—7 to 23 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; many fine roots; strongly acid; gradual wavy boundary.

E2—23 to 37 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; many fine roots; many dark brown (10YR 4/3) organic stained sand grains; about 5 percent ironstone nodules; strongly acid; clear wavy boundary.

Btv1—37 to 43 inches; yellowish brown (10YR 5/8) sandy loam; moderate medium subangular blocky structure; friable; few fine roots; 5 to 10 percent red (2.5YR 4/8) plinthite nodules; very strongly acid; gradual wavy boundary.

Btv2—43 to 54 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; 10 to 15 percent red (2.5YR 4/8) plinthite nodules; very strongly acid; gradual wavy boundary.

Btv3—54 to 80 inches; reticulately mottled light gray (10YR 7/1), yellowish brown (10YR 5/6), red (10R 4/8), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) sandy clay loam; strong medium subangular blocky structure; friable; about 5 percent plinthite nodules; very strongly acid.

Fuquay soils range from very strongly acid to medium acid throughout except where lime has been added. The solum is more than 80 inches thick. Depth to plinthite ranges from 35 to 60 inches.

The Ap or A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 3. The texture is sand, fine sand, loamy sand, or loamy fine sand. This horizon is 4 to 9 inches thick.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. The texture is sand, fine sand, loamy sand, or loamy fine sand. The E horizon is 16 to 31 inches thick.

The upper part of the Btv horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. The texture is fine sandy loam, sandy loam, or sandy clay loam. The lower part of the Btv horizon has hue of 2.5YR to 10YR, value of 4 to 8, and chroma of 1 to 8; or it is reticulately mottled. The texture is sandy clay loam. The Btv horizon contains from 5 to 15 percent, by volume, plinthite.

Lakeland Series

The Lakeland series consists of excessively drained, nearly level to gently undulating soils that formed in thick deposits of eolian or marine sands of the Coastal Plain. The soils are on summits of uplands. They do not have a high water table within a depth of 80 inches. Slopes range from 0 to 5 percent. The soils are thermic, coated Typic Quartzipsamments.

Lakeland soils are associated with Alpin, Blanton, Ortega, and Troup soils. Alpin soils have lamellae below a depth of 40 inches. Blanton soils are moderately well drained and are in lower positions on the landscape than the Lakeland soils. Ortega soils are moderately well drained and have uncoated sand grains. Troup soils have an argillic horizon below a depth of 40 inches.

Typical pedon of Lakeland sand, 0 to 5 percent slopes; in a wooded area, 0.6 mile north of County Road 259 and 0.6 mile east of Upper Cody Road, SW1/4NW1/4 sec. 28, T. 1 S., R. 3 S.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; many fine charcoal fragments; many fine and few medium roots; strongly acid; abrupt smooth boundary.

C1—8 to 16 inches; brown (10YR 4/3) sand; single grained; loose; many charcoal fragments; common fine roots; strongly acid; gradual wavy boundary.

C2—16 to 22 inches; dark yellowish brown (10YR 4/6) sand; single grained; loose; many charcoal fragments; few fine roots; strongly acid; gradual wavy boundary.

C3—22 to 40 inches; yellowish brown (10YR 5/6) sand; single grained; loose; many uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

C4—40 to 80 inches; brownish yellow (10YR 6/8) fine sand; single grained; loose; many uncoated sand grains; strongly acid.

Lakeland soils range from medium acid to very strongly acid except where the surface has been limed. Clay plus silt content in the particle-size control section is 5 to 10 percent. The texture is sand or fine sand to a depth of 80 inches or more.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4.

The C horizon has hue of 10YR, value of 4 to 7, and chroma of 3 to 8; or hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8. Small pockets of white sand grains are in some pedons.

Leefield Series

The Leefield series consists of somewhat poorly drained, nearly level to gently sloping soils that formed in deposits of sandy and loamy marine sediments of the Coastal Plain. The soils are in drainageways and on low knolls and foot slopes of uplands. A seasonal high water table is at a depth of 18 to 20 inches for 2 to 4 months in most years. Slopes range from 0 to 3 percent. The soils are loamy, siliceous, thermic Arenic Plinthaquic Paleudults.

Leefield soils are associated with Dothan, Fuquay, Pelham, and Orangeburg soils. Dothan and Orangeburg soils are well drained. They have sandy A and E horizons less than 20 inches thick. Fuquay soils are well drained and are in higher positions on the landscape than the Leefield soils. Pelham soils are poorly drained and are in lower positions.

Typical pedon of Leefield fine sand; in a cultivated area, 1 mile west of U.S. Highway 19, 40 feet south of County Road 158-B, NE1/4SE1/4 sec. 22, T. 1 N., R. 4 E.

Ap—0 to 7 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

E1—7 to 15 inches; pale yellow (2.5Y 7/4) fine sand; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.

E2—15 to 29 inches; yellow (2.5Y 7/6) fine sand; few fine distinct yellowish brown (10YR 5/8) mottles; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

E3—29 to 32 inches; light yellowish brown (2.5Y 6/4) fine sand; few fine prominent yellowish brown (10YR 5/8) mottles and common medium prominent light gray (10YR 7/1) mottles; single grained; loose; few fine roots; very strongly acid; clear wavy boundary.

Bt—32 to 38 inches; light yellowish brown (10YR 6/4) sandy loam; few fine prominent yellowish brown (10YR 5/8) mottles and common medium distinct light gray (10YR 7/1) mottles; weak fine subangular blocky structure; very friable; very strongly acid; clear wavy boundary.

Btgv—38 to 52 inches; light gray (10YR 7/1) sandy clay loam; common fine prominent yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; about 10 percent plinthite with red (2.5YR 4/8) interior and strong brown (7.5YR 5/8) exterior; very strongly acid; gradual wavy boundary.

Btg1—52 to 63 inches; light gray (10YR 7/1) sandy clay loam; common fine prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Btg2—63 to 80 inches; reticulately mottled light gray (10YR 7/1), yellow (10YR 7/6), yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), and yellowish red (5YR 5/8) sandy clay loam; strong medium subangular blocky structure; friable; very strongly acid.

Leefield soils are very strongly acid or strongly acid except where lime has been added. The solum ranges in thickness from 60 to 80 inches. Depth to a horizon that has more than 5 percent plinthite ranges from 35 to 60 inches.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 or 2. It is 7 to 11 inches thick.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 6. The lower part of the E horizon has few to common mottles in shades of gray, brown, and yellow. Total thickness of the A and E horizons ranges from 20 to 40 inches. The texture of the A and E horizons is sand, fine sand, or loamy fine sand.

The Bt horizon has hue of 10YR and 2.5Y, value of 5 to 7, and chroma of 4 to 8. The Btgv horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2. It has common to many mottles in shades of gray, brown, and red. The Btgv horizon contains from 5 to 15 percent, by volume, plinthite. The Btg horizon has the same color range as the Btgv horizon except the lower part of the horizon is commonly reticulately mottled in shades of gray, brown, red, and yellow. The texture of the Bt, the Btgv, and the Btg horizons is sandy loam or sandy clay loam.

Leon Series

The Leon series consists of poorly drained, nearly level to gently sloping soils that formed in thick deposits of sandy marine sediment of the Coastal Plain. The soils are in broad areas of the flatwoods. A seasonal high water table is within a depth of 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for more than 6 months in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Aeric Haplaquods.

Leon soils are associated with Chaires, Plummer, and Surrency soils. The associated soils have an argillic horizon. Surrency soils are also very poorly drained and are in lower positions on the landscape than the Leon soils.

Typical pedon of Leon fine sand; 0.25 mile south of Jones Mill Creek and 100 feet west of Goose Pasture Road, NE1/4SE1/4 sec. 34, T. 2 S., R. 4 E.

A—0 to 5 inches; black (N 2/0) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; many clean sand grains; extremely acid; clear wavy boundary.

E1—5 to 11 inches; gray (10YR 5/1) fine sand; few medium distinct black (10YR 2/1) organic stained sand grains along root channels; single grained; loose; common fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

E2—11 to 21 inches; light gray (10YR 6/1) fine sand; common medium distinct very dark gray (10YR 3/1) organic stained sand grains along root channels; single grained; loose; few fine roots; very strongly acid; abrupt wavy boundary.

Bh1—21 to 25 inches; very dark brown (10YR 2/2) fine sand; weak fine subangular blocky structure; friable; weakly cemented; few fine and medium roots; very strongly acid; clear wavy boundary.

Bh2—25 to 53 inches; dark brown (7.5YR 3/4) fine sand; many medium distinct dark yellowish brown (10YR 3/4) mottles; very weak fine subangular blocky structure; very friable; few fine and medium roots; very strongly acid; clear wavy boundary.

E'—53 to 57 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; very strongly acid; abrupt wavy boundary.

Bh'—57 to 80 inches; black (10YR 2/1) fine sand; weak fine subangular blocky structure; very friable; very strongly acid.

Leon soils range from strongly acid to extremely acid throughout. The texture is sand or fine sand in all horizons except the Bh horizon that also includes loamy sand.

The Ap or A horizon has hue of 10YR, value of 2 to 4, and chroma of 1, or it is neutral and has value of 2 to 4. When dry, this horizon has a salt-and-pepper appearance caused by mixing of organic matter and white sand grains. The Ap or A horizon is 4 to 9 inches thick.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. Some pedons have black or very dark gray organic staining along root channels. The E horizon is 5 to 22 inches thick.

The Bh1 horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 to 3. This horizon is commonly weakly cemented. The Bh2 horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4.

The E' horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Some pedons do not have an E' horizon.

The Bh' horizon is similar in color to the Bh1 horizon. It is below the E' horizon.

Lucy Series

The Lucy series consists of well drained, nearly level to rolling soils that formed in sandy and loamy marine sediments of the Coastal Plain. The soils are on summits and foot slopes of uplands. They do not have a high water table within a depth of 80 inches. Slopes range from 0 to 12 percent. The soils are loamy, siliceous, thermic Arenic Paleudults.

Lucy soils are associated with Albany, Orangeburg, and Troup soils. Albany soils are somewhat poorly drained and are in lower positions on the landscape than the Lucy soils. Orangeburg soils have sandy A and E horizons less than 20 inches thick, and Troup soils have sandy A and E horizons more than 40 inches thick.

Typical pedon of Lucy fine sand, 0 to 5 percent slopes; in a grape vineyard, 100 feet south of U.S. Highway 90 and 0.5 mile west of County Road 59, NE1/4NW1/4 sec. 4, T. 1 N., R. 3 E.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt wavy boundary.

A—8 to 13 inches; brown (10YR 4/3) loamy fine sand; single grained; loose; many fine roots; medium acid; clear wavy boundary.
E1—13 to 18 inches; yellowish brown (10YR 5/6) loamy fine sand; single grained; loose; common fine roots; pockets of white (10YR 8/1) sand stripping and few brown (10YR 4/3) organic stains; medium acid; gradual wavy boundary.
E2—18 to 27 inches; strong brown (7.5YR 5/6) loamy fine sand; single grained; loose; common fine roots; many white (10YR 8/1) sand strippings; strongly acid; gradual wavy boundary.
EB—27 to 34 inches; yellowish red (5YR 5/6) loamy fine sand; single grained; loose; common fine roots; many white (10YR 8/1) sand strippings; strongly acid; gradual wavy boundary.
Bt1—34 to 42 inches; yellowish red (5YR 4/6) fine sandy loam; moderate medium and coarse subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.
Bt2—42 to 54 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.
Bt3—54 to 80 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; strongly acid.

Lucy soils are strongly acid in the A and E horizons except where lime has been added, and they are strongly acid or very strongly acid in the B horizon. The solum is more than 80 inches thick.

The Ap or A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. The E horizon has hue of 10YR and 7.5YR, value of 4 to 7, and chroma of 3 to 8. The texture of the A and E horizons are loamy sand, loamy fine sand, fine sand, or sand. The EB horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 6 or 8. The texture is loamy fine sand or loamy sand. Total thickness of the A and E horizons ranges from 20 to 40 inches.

The Bt horizon has hue of 2.5YR, 5YR, or 7.5YR, value of 4 or 5, and chroma of 6 or 8. The texture is sandy loam, fine sandy loam, or sandy clay loam. Mottles in shades of yellow or brown are below a depth of 36 inches in some pedons.

Lynchburg Series

The Lynchburg series consists of somewhat poorly drained, nearly level soils that formed in thick deposits of loamy marine sediment of the Coastal Plain. The soils are in drainageways and on foot slopes of uplands. The seasonal high water table is within a depth of 12 to 30 inches for 1 to 3 months in most years. Slopes range from 0 to 2 percent. The soils are fine-loamy, siliceous, thermic Aeric Paleaquults.

Lynchburg soils are associated with Albany, Leefield, Orangeburg, and Rains soils. Albany soils have A and E horizons with a combined thickness of at least 40 inches. Leefield soils have A and E horizons between 20 and 40 inches thick and have 5 percent or more plinthite. Orangeburg soils are well drained and are in higher positions on the landscape than the Lynchburg soils. Rains soils are poorly drained and are in lower positions.

Typical pedon of Lynchburg loamy fine sand; in a pasture, 0.5 mile east of County Road 149 and 0.25 mile north of State Road 149A, SW1/4NE1/4 sec. 8, T. 2 N., R. 5 E.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.
A—7 to 9 inches; dark gray (10YR 4/1) loamy fine sand; weak fine granular structure; very friable; many fine and common medium roots; very strongly acid; clear wavy boundary.
E—9 to 17 inches; light gray (10YR 7/2) loamy fine sand; common medium prominent yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.
Bt—17 to 23 inches; pale brown (10YR 6/3) sandy clay loam; few medium faint light gray (10YR 7/2) mottles and common coarse prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; very strongly acid; gradual wavy boundary.
Btg—23 to 61 inches; light brownish gray (10YR 6/2) sandy clay loam; many medium and coarse prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
C—61 to 80 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and light reddish brown (5YR 6/4) sandy clay loam; massive; very strongly acid.

Lynchburg soils range from medium acid to extremely acid throughout. The solum is more than 60 inches thick. Coarse fragments range from 0 to 7 percent, by volume.

The A1 or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The E horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 4. Mottles are in shades of yellow, brown, or gray. The texture of the A and E horizons is loamy sand and fine sandy loam. Total thickness of the A and E horizons is less than 20 inches.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8. It has few to many mottles that have chroma of 1 or 2 and higher chroma mottles in shades of red, brown, or yellow.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It has common to many mottles of higher chroma. The texture is sandy loam, fine sandy loam, or sandy clay loam. Weighted average clay content of the upper 20 inches of the argillic horizon ranges from 18 to about 30 percent.

The C horizon is gray or coarsely mottled in shades of red, yellow, brown, or gray. The texture is sandy loam, sandy clay loam, or sandy clay, and many pedons are stratified.

Mascotte Series

The Mascotte series consists of poorly drained, nearly level soils that formed in marine deposits of sandy and loamy sediments. The soils are in broad, low, flat areas on the flatwoods of the Coastal Plain. A seasonal high water table is within a depth of 10 inches for 2 to 4 months and within a depth of 20 to 40 inches for 6 months or more in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Ultic Haplaquods.

Mascotte soils are associated with Sapelo, Pelham, and Plummer soils. Sapelo and Plummer soils have an argillic horizon below a depth of 40 inches. Pelham and Plummer soils do not have a spodic horizon.

Typical pedon of Mascotte sand; SW1/4NE1/4 sec. 25, T. 1 S., R. 4 E.

A—0 to 4 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; common fine and few medium roots; extremely acid; clear smooth boundary.

E—4 to 10 inches; gray (10YR 5/1) sand; single grained; loose; common fine and few medium roots; extremely acid; clear wavy boundary.

Bh1—10 to 13 inches; very dark brown (10YR 2/2) sand; weak fine subangular blocky structure; very friable; common fine and few medium roots; extremely acid; clear wavy boundary.

Bh2—13 to 17 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; very friable; common fine and few medium roots; extremely acid; clear wavy boundary.

E'1—17 to 25 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; common fine roots; extremely acid; clear wavy boundary.

E'2—25 to 30 inches; grayish brown (10YR 5/2) fine sand; few medium distinct dark yellowish brown (10YR 4/4) mottles and few medium prominent yellowish brown (10YR 5/8) mottles; single grained; loose; very strongly acid; clear wavy boundary.

Btg1—30 to 35 inches; gray (10YR 6/1) sandy clay loam; common medium prominent yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

Btg2—35 to 80 inches; gray (10YR 5/1) sandy clay loam; common medium prominent yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots in the upper part; very strongly acid.

Mascotte soils are extremely acid to strongly acid throughout. Depth to the Bh horizon is 10 to 24 inches and depth to the Btg horizon is 25 to 38 inches.

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

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. The texture is fine sand or sand.

The Bh horizon has hue of 7.5YR, value of 3 or 4, and chroma of 3 or 4; or hue 10YR, value of 2, and chroma of 1 or 2. The texture is fine sand or sand. The Bh horizon is 5 to 15 inches thick.

The E' horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. The texture is sand, fine sand, or loamy fine sand. Some pedons do not have an E' horizon.

The Bt horizon has hue of 10YR, value of 5 and 6, and chroma of 1 or 2. The texture is fine sandy loam or sandy clay loam.

Miccosukee Series

The Miccosukee series consists of moderately well drained, nearly level soils that formed in marine and alluvial sediments of the Coastal Plain. The soils are in shallow depressions that are depositional surfaces adjacent to erosional surfaces. Brief ponding for periods of 1 to 2 days can result from intense rains. Slopes range from 0 to 2 percent. The soils are fine-loamy, siliceous, thermic Cumulic Haplumbrepts.

Miccosukee soils are associated with Dothan, Fuquay, Leefield, and Lynchburg soils. The associated soils do not have a cumulic epipedon. Dothan and Fuquay are well drained, and Leefield and Lynchburg are somewhat poorly drained.

Typical pedon of Miccosukee fine sandy loam, 0 to 2 percent slopes; in a cultivated field, 9 miles north of Monticello, SW1/4SE1/4 Government Lot 146, T. 3 N., R. 4 E.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate fine granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary.

A1—9 to 15 inches; very dark grayish brown (10YR 3/2) clay loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear smooth boundary.

A2—15 to 28 inches; very dark grayish brown (10YR 3/2) sandy clay loam; weak fine granular structure; friable; common fine roots; few thin discontinuous bands of dark yellowish brown (10YR 4/4) sand; strongly acid; clear wavy boundary.

A3—28 to 37 inches; very dark gray (10YR 3/1) sandy clay loam; weak fine granular structure; friable; few fine roots; strongly acid; clear wavy boundary.

Ab—37 to 43 inches; intermingled dark yellowish brown (10YR 4/4) and dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; very friable; strongly acid; clear wavy boundary.

Btb1—43 to 50 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

Btb2—50 to 65 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; friable; medium acid; clear wavy boundary.

Btb3—65 to 80 inches; yellowish brown (10YR 5/8) sandy clay; many medium prominent yellowish red (10YR 5/8), red (2.5YR 4/8), and white (N 8/0) mottles; moderate medium subangular blocky structure; friable; many black manganese nodules; strongly acid.

Miccosukee soils range from very strongly acid to medium acid. The solum is more than 80 inches thick.

The A horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 to 3. The texture is very fine sandy loam, fine sandy loam, sandy loam, loam, silt loam, clay loam, or sandy clay loam. The A horizon is 21 to 60 inches thick.

The Ab horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 4. The texture is loamy sand, loamy fine sand, fine sandy loam, or sandy loam. The Ab horizon is 4 to 16 inches thick.

Some pedons have an Eb horizon. It has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. The texture is loamy sand, loamy fine sand, fine sandy loam, or sandy loam.

The Btb horizon has hue of 7.5YR or 10YR, value of 3 to 7, and chroma of 2 to 8. It has few to many mottles in shades of gray, yellow, brown, or red. In some pedons, the lower part of the Btb horizon is reticulately mottled. The texture of the Btb horizon is fine sandy loam, sandy clay loam, or sandy clay.

Nutall Series

The Nutall series consists of poorly drained and very poorly drained, nearly level soils that formed in thin sandy and clayey marine sediments underlain by limestone bedrock of the Coastal Plain. The soils are in broad, poorly defined drainageways, on flood plains, and in depressions in the flatwood areas. A seasonal high water table is between the surface and a depth of 10 inches for 6 to 8 months. Depressional and other lower-lying areas are subject to flooding 48 inches above the surface for 4 to 6 months. Slopes range from 0 to 1 percent. The soils are fine-loamy, siliceous, thermic Mollic Albaqualfs.

Nutall soils are associated with Chaires, Tooles, Leon, and Surrency soils. Chaires and Leon soils have a spodic horizon. Tooles soils have sandy A and E horizons 20 to 40 inches thick. Surrency soils do not have limestone bedrock in the lower part of the profile and have a base saturation of less than 35 percent in the subsoil.

Typical pedon of Nutall fine sand, from an area of Nutall-Tooles complex; in a wooded area, 1.25 miles east of State Road 59 and 2.5 miles north of U.S. Highway 98, NE1/4NW1/4 sec. 15, T. 3 S., R. 3 E.

A—0 to 4 inches; black (5Y 2/1) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

A/E—4 to 9 inches; very dark gray (10YR 3/1) and light gray (10YR 6/1) fine sand; single grained; loose; many medium and coarse roots; slightly acid; clear smooth boundary.

E1—9 to 13 inches; light gray (10YR 7/1) fine sand; common medium distinct brown (10YR 5/3) mottles; single grained; loose; common medium roots; neutral; clear wavy boundary.

E2—13 to 17 inches; brown (10YR 5/3) fine sand; many medium distinct light gray (10YR 6/1) mottles; single grained; loose; few medium roots; neutral; abrupt irregular boundary.

Btg—17 to 30 inches; light greenish gray (5GY 7/1) sandy clay loam; many fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; mildly alkaline; abrupt irregular boundary.

R—30 inches; soft limestone bedrock.

The A horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 1 or 2. The texture is fine sand, sand, or very fine sand. The reaction is very strongly acid or strongly acid in areas that are not limed.

The E horizon has hue of 10YR, value of 5 or 7, and chroma of 1 or 2 in the upper part and value of 5 or 6 and chroma of 2 or 3 in the lower part. Few to common mottles in shades of brown and gray are in most pedons. The texture is fine sand, sand, or very fine sand. The reaction ranges from neutral to strongly acid. Total thickness of the A and E horizons ranges from 8 to 20 inches.

The Bt horizon has hue of 10YR, 2.5Y, or 5GY, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. The texture is sandy clay, sandy clay loam, or sandy loam that has less than 35 percent weighted average clay content in the upper part of the Bt horizon. The reaction ranges from slightly acid to mildly alkaline.

Depth to limestone bedrock ranges from 21 to 40 inches.

Orangeburg Series

The Orangeburg series consists of well drained, gently undulating to rolling soils that formed in loamy and clayey sediments of the Coastal Plain. The soils are on summits, shoulders, and back slopes of uplands. They do not have a high water table within a depth of 80 inches. Slopes range from 2 to 12 percent. The soils are fine-loamy, siliceous, thermic Typic Paleudults.

Orangeburg soils are associated with Blanton, Fuquay, Dothan, and Lucy soils. Blanton soils are moderately well drained and have sandy A and E horizons more than 40 inches thick. Lucy soils have sandy A and E horizons more than 20 inches thick, and Fuquay and Dothan soils have more than 5 percent plinthite within a depth of 60 inches.

Typical pedon of Orangeburg sandy loam, 2 to 5 percent slopes; in a pasture, 300 feet south of U.S. Highway 27, about 1.25 miles east of Capps, NE1/4NE1/4 sec. 14, T. 15 S., R. 4 E.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

Bt1—7 to 34 inches; red (2.5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; gradual wavy boundary.

Bt2—34 to 60 inches; red (2.5YR 4/8) sandy clay; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

Bt3—60 to 80 inches; red (2.5YR 4/8) sandy clay; moderate medium subangular blocky structure; friable; very strongly acid.

Orangeburg soils are medium acid to very strongly acid in the A horizon except where lime has been added. They are strongly acid or very strongly acid in the Bt horizon. The solum is more than 60 inches thick.

The Ap or A horizon has hue of 7.5YR, value of 4 or 5, and chroma of 2 or 4; or hue of 10YR, value of 3 to 5, and chroma of 2 to 6. The texture is sandy loam, fine sandy loam, loamy fine sand, or loamy sand. The Ap or A horizon ranges from 4 to 8 inches thick.

Some pedons have an E horizon. It has hue of 10YR, value of 5 or 6, and chroma of 4 to 6; or hue of 5YR, value of 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. The texture is sandy clay loam, sandy loam, or fine sandy loam in the upper part and sandy clay loam and sandy clay in the lower part. Weighted average clay content of the upper 20 inches of the Bt horizon ranges from 20 to 35 percent.

Ortega Series

The Ortega series consists of moderately well drained, nearly level to gently sloping soils that formed in thick, sandy marine or eolian deposits of the Coastal Plain. The soils are on low knolls on the flatwoods and uplands. A seasonal high water table is between depths of 60 and 72 inches for more than 6 months in most years, and within a depth of 40 to 60 inches for 1 or 2 months of most years during heavy rainfall periods. Slopes range from 0 to 5 percent. The soils are thermic, uncoated Typic Quartzipsamments.

Ortega soils are associated with Alpin, Chipley, and Plummer soils. Alpin soils have lamellae and are excessively drained. Chipley soils are somewhat poorly drained and are in lower positions on the landscape than the Ortega soils. Plummer soils have an argillic horizon and are poorly drained.

Typical pedon of Ortega fine sand, 0 to 5 percent slopes; 150 feet south and 2,050 feet east of the northwest section corner, NE1/4NW1/4 sec. 32, T. 1 S., R. 3 E.

Ap—0 to 5 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; few coarse and many very fine and fine roots; very strongly acid; abrupt smooth boundary.

C1—5 to 21 inches; yellowish brown (10YR 5/8) fine sand; single grained; loose; few coarse and common very fine and fine roots; very strongly acid; clear wavy boundary.

C2—21 to 41 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; few coarse and common very fine and fine roots; very strongly acid; clear wavy boundary.

C3—41 to 58 inches; pale yellow (2.5Y 7/4) fine sand; common fine prominent strong brown (7.5YR 5/8) mottles and common medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; few very fine and fine roots; very strongly acid; clear wavy boundary.

C4—58 to 70 inches; white (10YR 8/2) fine sand; common fine prominent brownish yellow (10YR 6/6) mottles and few fine prominent reddish yellow (7.5YR 6/6) mottles; single grained; loose; few very fine and fine roots; strongly acid; clear wavy boundary.

C5—70 to 80 inches; white (10YR 8/1) fine sand; single grained; loose; medium acid.

Ortega soils ranges from very strongly acid to slightly acid. The texture is sand or fine sand to a depth of 80 inches or more.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is 4 to 8 inches thick.

The C1 and C2 horizons have hue of 10YR, value of 5 to 7, and chroma of 3 to 8. Few to common, fine to coarse mottles or pockets of white or light gray uncoated sand grains are in these horizons in some pedons, but they are not indicative of wetness.

The C3 horizon has hue of 2.5Y and 10YR, value of 6 to 8 and chroma of 2, 4, 6, or 8. It has common, fine and medium, distinct and prominent mottles.

The C4 and C5 horizons have hue of 7.5YR and 10YR, value of 5 to 8, and chroma of 1 to 6. The C4 horizon has common, medium, distinct mottles in shades of yellow, red, or brown.

Pamlico Series

The Pamlico series consists of very poorly drained, nearly level soils that formed in highly decomposed organic matter underlain by sandy mineral sediment of the Coastal Plain. The soils are on level and depressional surfaces on flatwoods and uplands. The high water table is within a depth of 15 inches throughout most of the year, and it is at or above the surface for 5 to 8 months during the year. Slopes are less than 1 percent. The soils are sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists.

Pamlico soils are associated with Dorovan, Pelham, Plummer, and Surrency soils. Pelham, Plummer, and Surrency soils are mineral soils. Dorovan soils have more than 51 inches of organic material.

Typical pedon of Pamlico muck, in an area of Pamlico-Dorovan mucks; in a swamp about 2,000 feet north of Interstate 10, SW1/4SE1/4 sec. 23, T. 1 N., R. 5 E.

Oa1—0 to 4 inches; very dark brown (10YR 2/2) muck; partly decomposed roots, leaves, and grass; about 30 percent fiber unrubbed and less than 10 percent rubbed; massive; slightly sticky; extremely acid; gradual wavy boundary.

Oa2—4 to 10 inches; black (10YR 2/1) muck; about 25 percent fiber unrubbed and less than 5 percent rubbed; massive; nonsticky; extremely acid; gradual wavy boundary.

Oa3—10 to 27 inches; black (10YR 2/1, 2/2) muck; about 30 percent fiber unrubbed and less than 5 percent rubbed; massive; nonsticky; extremely acid; gradual wavy boundary.

2Cg—27 to 80 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; very strongly acid.

Pamlico soils are very strongly acid or extremely acid throughout.

The Oa horizon has hue of 10YR and 7.5YR, value of 2 or 3, and chroma of 1 or 2; or it is neutral and has value of 2 or 3. Fiber content after rubbing is less than 10 percent. Combined thickness of the organic horizons ranges from 16 to 51 inches over sandy sediment.

The 2Cg horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. The texture is sand or loamy fine sand.

Pelham Series

The Pelham series consists of poorly drained, nearly level soils that formed in loamy marine sediment of the Coastal Plain. The soils are on broad flats and in drainageways on uplands and flatwoods. A seasonal high water table is within 15 inches of the surface for 3 to 6 months in most years. The soils are subject to brief flooding after heavy rains. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Arenic Paleaquults.

Pelham soils are associated with Albany, Leefield, Plummer, and Surrency soils. Albany and Leefield soils are somewhat poorly drained and are in higher positions on the landscape than the Pelham soils. Plummer soils are in the same position as the Pelham soils but have sandy A and E horizons more than 40 inches thick. Surrency soils are very poorly drained.

Typical pedon of Pelham fine sand; 100 feet north of Interstate Highway 10 and 0.3 mile east of Lloyd Road, SW1/4NW1/4NE1/4 sec. 13, T. 1 N., R. 4 E.

Ap—0 to 8 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; abrupt wavy boundary.

E1—8 to 18 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; common medium and fine roots; very strongly acid; gradual wavy boundary.

E2—18 to 24 inches; grayish brown (2.5Y 5/2) fine sand; single grained; loose; common medium and fine roots; strongly acid; gradual wavy boundary.

E3—24 to 34 inches; grayish brown (2.5Y 5/2) fine sand; many medium prominent strong brown (7.5YR 5/8) mottles; single grained; loose; few fine and medium roots; very strongly acid; clear wavy boundary.

Btg1—34 to 49 inches; light gray (10YR 6/1) fine sandy loam; many fine prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

Btg2—49 to 80 inches; light gray (10YR 6/1) sandy clay loam; few fine prominent strong brown (7.5YR 5/8) mottles and few fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; few medium and fine roots; strongly acid.

Pelham soils are strongly acid or very strongly acid throughout except where the surface has been limed. The solum is more than 80 inches thick.

The A or Ap horizon has hue of 10YR to 5Y, value of 2 to 4, and chroma of 1. It is 4 to 8 inches thick.

The E horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. The texture of the A and E horizons are sand, fine sand, or loamy sand. Total thickness of the A and E horizon is between 20 and 40 inches.

The Btg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1. It has mottles in shades of yellow or brown. The texture is sandy loam, fine sandy loam, or sandy clay loam.

Plummer Series

The Plummer series consists of poorly drained, nearly level soils that formed in sandy and loamy marine or fluvial sediments of the Coastal Plain. The soils are in poorly defined drainageways on uplands and flatwoods. The high water table is at the surface or within 15 inches for 3 to 6 months in most years. The soils are subject to brief flooding after heavy rains. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Paleaquults.

Plummer soils are associated with Albany, Leefield, Pelham, Sapelo, and Surrency soils. Albany and Leefield soils are somewhat poorly drained and are in higher positions on the landscape than the Plummer soils. Sapelo soils have a spodic horizon. Pelham soils have an argillic horizon between depths of 20 and 40 inches. Surrency soils are very poorly drained.

Typical pedon of Plummer fine sand; in a wooded area, NE1/4SW1/4 sec. 7, T. 1 N., R. 4 E.

A—0 to 6 inches; black (10YR 2/1) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; extremely acid; clear wavy boundary.

Eg1—6 to 18 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

Eg2—18 to 43 inches; gray (10YR 5/1) fine sand; single grained; loose; extremely acid; gradual wavy boundary.

Eg3—43 to 69 inches; light gray (10YR 6/1) fine sand; single grained; loose; very strongly acid; gradual wavy boundary.

Btg1—69 to 75 inches; light gray (10YR 6/1) sandy loam; common medium prominent yellowish brown (10YR 5/6) mottles and common fine prominent yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg2—75 to 80 inches; light gray (10YR 7/1) sandy clay loam; many coarse prominent yellowish brown (10YR 5/6) mottles and common medium prominent yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; firm; very strongly acid.

Plummer soils range from extremely acid to strongly acid in all horizons except where lime has been added. The solum is more than 80 inches thick.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is 4 to 12 inches thick. Where the A horizon is very dark gray or black, it is less than 8 inches thick. The texture is sand, fine sand, or loamy sand.

The Eg horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2; or it has hue of 2.5Y, value of 8, and chroma of 2. Few to common mottles in shades of brown, yellow, or gray are in some pedons. Total thickness of the A and E horizons ranges from 40 to 80 inches. The texture is sand, fine sand, or loamy sand.

The Btg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many mottles in shades of red or brown. The texture is fine sandy loam, sandy clay loam, or sandy clay. Sandy clay is confined to the lower part of the B horizon.

Rains Series

The Rains series consists of poorly drained, nearly level soils that formed in thick, loamy marine sediment. The soils are in drainageways and slight depressions on uplands of the Coastal Plain. The seasonal high water table is within 12 inches of the surface for about 6 months each year. During wet seasons, the soils are ponded more than once each year for periods of several weeks. Slope is dominantly less than 1 percent but ranges to 2 percent. The soils are fine-loamy, siliceous, thermic Typic Paleaquults.

Rains soils are associated with Leefield, Lynchburg, Pelham, and Surrency soils. Lynchburg and Leefield soils are somewhat poorly drained and are in higher positions on the landscape than the Rains soils. Pelham soils have sandy surface and subsurface layers at least 20 inches thick above the Bt horizon. Surrency soils are very poorly drained and have a sandy surface layer 20 inches or more thick.

Typical pedon of Rains fine sandy loam; in a pasture, 2 miles north of County Road 146, 650 feet west of U.S. Highway 221, NW1/4SE1/4 Government Lot 183, T. 3 N., R. 7 E.

Ap—0 to 7 inches; black (10YR 2/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

Btg1—7 to 23 inches; gray (10YR 5/1) sandy clay loam; few fine prominent red (2.5YR 4/6) mottles and common medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; medium pockets of sand; strongly acid; clear wavy boundary.

Btg2—23 to 34 inches; light gray (10YR 6/1) sandy clay loam; common coarse prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg3—34 to 46 inches; gray (10YR 5/1) sandy clay; many medium prominent yellowish brown (10YR 5/6) mottles and many fine prominent red (10YR

4/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

Btg4—46 to 80 inches; intermingled gray (10YR 5/1) and brownish yellow (10YR 6/6) sandy clay; common coarse distinct white (10YR 8/1) mottles and many fine prominent red (10YR 4/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid.

Rains soils are very strongly acid to slightly acid in the A horizon and very strongly acid or strongly acid throughout the rest of the profile. The solum is 60 inches or more thick.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2. The texture is fine sandy loam, sandy loam, or loamy fine sand. This horizon is 4 to 9 inches thick.

The Btg horizon has hue of 2.5Y or 10YR, value of 4 to 7, and chroma of 1 or 2. It has few to many mottles that have higher chroma. The texture of the Btg horizon is sandy clay loam, clay loam, or sandy clay. Weighted average clay content in the particle-size control section is less than 35 percent.

Rutlege Series

The Rutlege series consists of very poorly drained, nearly level soils that formed in deposits of sandy marine sediment of the Coastal Plain. The soils are in shallow depressions and natural drainageways. The high water table is above or near the surface for 4 to 6 months of the year. The soils are subject to ponding after heavy rainfall periods. Slopes are less than 1 percent. The soils are sandy, siliceous, thermic Typic Humaquepts.

Rutlege soils are associated with Bibb, Chaires, Chipley, Leon, and Plummer soils. Bibb soils are poorly drained, have stratified sandy horizons, and are on flood plains. Chaires and Leon soils have a spodic horizon. Chipley soils are in higher positions on the landscape than the Rutlege soils and are somewhat poorly drained. Plummer soils do not have an umbric epipedon and have an argillic horizon.

Typical pedon of Rutlege fine sand; in a wooded area, 0.5 mile east of County Road 59 and 0.6 mile south of County Road 158, NW1/4NE1/4SE1/4 sec. 22, T. 1 N., R. 3 E.

A1—0 to 7 inches; black (10YR 2/1) fine sand; weak fine granular structure; very friable; many fine and medium and few coarse roots; very strongly acid; gradual wavy boundary.

A2—7 to 12 inches; very dark gray (5YR 3/1) fine sand; single grained; loose; many fine and few medium roots; very strongly acid; gradual wavy boundary.

Cg1—12 to 28 inches; dark grayish brown (10YR 4/2) fine sand; few medium faint grayish brown (10YR 5/2) mottles; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

Cg2—28 to 39 inches; grayish brown (10YR 5/2) fine sand; few fine distinct yellowish brown (10YR 5/6) and light gray (10YR 7/1) mottles; single grained; loose; few fine roots; extremely acid; gradual wavy boundary.

Cg3—39 to 43 inches; light brownish gray (10YR 6/2) fine sand; few fine faint grayish brown mottles; single grained; loose; extremely acid; gradual wavy boundary.

Cg4—43 to 58 inches; light gray (10YR 7/2) fine sand; common fine faint pale brown mottles; single grained; loose; extremely acid; gradual wavy boundary.

Cg5—58 to 80 inches; light gray (10YR 7/1) fine sand; few fine distinct very pale brown (10YR 8/3) mottles; single grained; loose; extremely acid.

Rutlege soils are very strongly acid or extremely acid throughout.

The A horizon has hue of 10YR to 5Y, value of 2 or 3, and chroma of 1 or 2. It is 10 to 24 inches thick. The texture is sand, fine sand, or loamy fine sand.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It has mottles that have value of 5 to 8 and chroma of 1 to 6. The texture is sand or fine sand.

Sapelo Series

The Sapelo series consists of poorly drained, nearly level soils that formed in marine deposits of sandy and loamy sediments. The soils are in broad, low, flat areas on the flatwoods of the lower Coastal Plain. A seasonal high water table is within a depth of 10 inches for 1 to 3 months and within a depth of 10 to 40 inches for 6 months or more in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Ultic Haplaquods.

Sapelo soils are associated with Albany, Chipley, and Ortega soils. Albany and Chipley soils are somewhat poorly drained and do not have a spodic horizon. Ortega soils are in higher positions on the landscape than the Sapelo soils and are moderately well drained.

Typical pedon of Sapelo fine sand; in a wooded area, 750 feet south and 60 feet west of the center of sec. 5, T. 1 S., R. 6 E.

A—0 to 3 inches; black (10YR 2/1) fine sand; weak very fine granular structure; very friable; common to many clean sand grains; many fine and medium roots; extremely acid; abrupt wavy boundary.

E—3 to 10 inches; gray (10YR 5/1) fine sand; single grained; loose; common fine and few medium roots; very strongly acid; abrupt wavy boundary.

Bh1—10 to 14 inches; dark reddish brown (5YR 3/2) loamy fine sand; weak medium and fine subangular blocky structure; friable; weakly cemented; few fine and medium roots; very strongly acid; clear irregular boundary.

Bh2—14 to 19 inches; dark brown (7.5YR 4/4) loamy fine sand; weak fine subangular blocky structure; very friable; weakly cemented; few very fine roots; very strongly acid; clear irregular boundary.

E'1—19 to 30 inches; light gray (10YR 7/2) sand; common fine and medium prominent strong brown (7.5YR 5/6) mottles and common fine distinct light brownish gray (2.5Y 6/2) mottles; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

E'2—30 to 54 inches; light gray (2.5Y 7/2) sand; common fine and medium prominent brownish yellow (10YR 6/6) mottles and common fine distinct light brownish gray (10YR 6/2) mottles; single grained; loose; few fine roots; very strongly acid; clear wavy boundary.

Btg1—54 to 60 inches; light gray (2.5Y 7/2) sandy loam; few fine and medium prominent reddish yellow (7.5YR 6/8) mottles; weak fine subangular blocky structure; very friable; very strongly acid; clear wavy boundary.

Btg2—60 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam; many fine and medium prominent reddish yellow (7.5YR 6/8) and yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; very strongly acid.

Sapelo soils range from extremely acid to strongly acid. The solum ranges in thickness from 70 to 90 inches. Depth to Bh horizon ranges from 10 to 30 inches, and depth to the Bt horizon ranges from about 42 to 70 inches.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1; or it is neutral and has value of 2 to 4. The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1. The texture of the A and E horizons is fine sand or sand.

The Bh horizon has hue of 10YR, value of 2, and chroma of 1 or 2, or value of 3 and chroma of 3; hue of 7.5YR, value of 3 or 4, and chroma of 2, or value of 4 and chroma of 4; or hue of 5YR, value of 2 or 3, and chroma of 2 to 4. The texture is fine sand or loamy fine sand.

The E' horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 4. The texture is fine sand or sand. This horizon has common to many mottles in shades of gray, brown, and yellow.

The Btg horizon has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 1 or 2. It has common to many mottles in shades of yellow, red, and brown. The texture is sandy loam, fine sandy loam, or sandy clay loam.

Surrency Series

The Surrency series consists of very poorly drained, nearly level soils that formed in marine or fluvial deposits of loamy material of the Coastal Plain. The soils are in level drainageways and depressions on uplands and flatwoods. They are ponded for 6 to 9 months out of the year, or the high water table is just below the soil surface. Slopes are less than 1 percent. The soils are loamy, siliceous, thermic Arenic Umbric Paleaquults.

Surrency soils are associated with Albany, Chaires, Leefield, Mascotte, Pelham, and Plummer soils. Albany and Leefield soils are somewhat poorly drained and are in higher positions on the landscape than the Surrency soils. Chaires and Mascotte soils are poorly drained and have a spodic horizon. Pelham and Plummer are poorly drained, do not have an umbric epipedon, and are in slightly higher positions than the Surrency soils.

Typical pedon of Surrency fine sand; near the intersection of County Road 59 and Interstate 10, about 700 feet south of Interstate 10 and 800 feet west of County Road 59, NW1/4SE1/4 sec. 16, T. 1 N., R. 3 E.

A1—0 to 11 inches; dark gray (N 3/0) fine sand; few fine and medium prominent dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; very friable; few very fine and common fine roots; very strongly acid; clear wavy boundary.

A2—11 to 15 inches; very dark gray (10YR 3/1) fine sand; few fine and medium distinct dark yellowish brown (10YR 4/4) mottles; single grained; loose; common fine and few medium roots; strongly acid; clear wavy boundary.

Eg—15 to 26 inches; light gray (10YR 7/1) fine sand; many fine and medium distinct dark yellowish brown (10YR 4/4) mottles; single grained; loose; few fine roots; strongly acid; clear wavy boundary.

Btg1—26 to 39 inches; light gray (5Y 6/1) fine sandy loam; many fine and medium prominent dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; very friable; few coarse roots; very strongly acid; gradual wavy boundary.

Btg2—39 to 59 inches; light gray (5Y 6/1) sandy clay loam; few medium and many coarse prominent dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg3—59 to 80 inches; light gray (5Y 6/1) sandy clay loam; common medium prominent dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; strongly acid.

Surrency soils are extremely acid to strongly acid in the A horizon and strongly acid or very strongly acid in the B horizon.

The A horizon has hue of 10YR or 5Y, value of 1 to 3, chroma of 1 or 2, or it is neutral and has value of 2 or 3.

The Eg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. Mottles that have chroma of 4 to 8 are common in some pedons. The texture of the A and Eg horizons is loamy fine sand, fine sand, or sand. Combined thickness of these horizons ranges from 20 to 40 inches.

The Bt horizon has hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2. It has common to many brownish yellow, brown, yellowish brown, and strong brown mottles. The texture is fine sandy loam, sandy loam, or sandy clay loam. This horizon extends to a depth of at least 80 inches.

Tifton Series

The Tifton series consists of well drained, gently undulating to gently rolling soils that formed in thick beds of loamy marine sediment of the Coastal Plain. The soils are on shoulders and summits of uplands. A perched high water table is above the subsoil very briefly during wet periods. Slopes range from 2 to 8 percent. The soils are fine-loamy, siliceous, thermic Plinthic Paleudults.

Tifton soils are associated with Fuquay, Lucy, Orangeburg, and Dothan soils. Fuquay and Lucy soils have a sandy surface horizon 20 to 40 inches thick. Orangeburg soils have less than 5 percent plinthite within a depth of 60 inches and have a redder subsoil than the Tifton soils. Dothan soils have less than 5 percent iron concretions in the surface horizon.

Typical pedon of Tifton gravelly loamy fine sand, 2 to 5 percent slopes; in a planted pine stand, NW1/4 of Government Lot 151, T. 3 N., R. 5 E.

Apc—0 to 6 inches; dark grayish brown (10YR 4/2) gravelly loamy fine sand; weak fine granular structure; very friable; few coarse and many medium and fine roots; 15 percent ironstone nodules 2 to 20 mm in diameter; strongly acid; abrupt smooth boundary.

BEc—6 to 10 inches; yellowish brown (10YR 5/4) gravelly sandy loam; weak coarse subangular blocky structure; very friable; few medium and fine roots; 15 percent ironstone nodules 2 to 10 mm in diameter; strongly acid; clear smooth boundary.

Btc—10 to 45 inches; yellowish brown (10YR 5/8) gravelly sandy clay loam; moderate medium subangular blocky structure; firm; few coarse and medium roots; 20 percent ironstone nodules 2 to 15 mm in diameter; 2 to 3 percent plinthite in the lower part; strongly acid; clear wavy boundary.

Btv1—45 to 60 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium prominent red (10R 4/6) mottles; moderate medium subangular blocky structure; firm; 15 percent nodular plinthite; about 2 percent ironstone nodules 2 to 10 mm in diameter; strongly acid; clear wavy boundary.

Btv2—60 to 80 inches; reticulately mottled yellowish brown (10YR 5/6), red (2.5YR 4/8, 4/6), very pale brown (10YR 7/3), and light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; firm; 15 percent nodular plinthite; strongly acid.

Tifton soils are strongly acid or very strongly acid throughout except where lime has been added. The solum is 60 or more inches thick. Ironstone nodules range from 5 to 20 percent, by volume, in the Apc, BEc, and Btc horizons and from none to 10 percent in the Btv horizon. The Btc horizon also contains from 0 to 4 percent plinthite. Depth to horizons that have more than 5 percent plinthite is 35 to 50 inches. Weighted average clay content in the upper 20 inches of the Bt horizon is 20 to 35 percent.

The Apc horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The texture is gravelly loamy fine sand. This horizon is 6 to 8 inches thick.

The BEc horizon has a hue of 10YR, value of 5 or 6, and chroma of 4 or 6. The texture is sandy loam or fine sandy loam. This horizon is up to 8 inches thick.

The Btc horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8. The texture is gravelly sandy clay loam. This horizon is 25 to 40 inches thick.

The Btv horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8; or it is reticulately mottled in the lower part in hue of 10R to 2.5Y, value of 4 to 7, and chroma of 1 to 8. The texture is sandy clay loam or sandy clay. This horizon is 35 to 50 inches thick. It contains 5 to 15 percent plinthite.

Tooles Series

The Tooles series consists of poorly drained and very poorly drained, nearly level soils that formed in sandy and clayey marine sediments of the Coastal Plain. The soils are underlain by limestone bedrock. The soils are in broad, poorly defined drainageways, on flood plains, and in depressions of the flatwood areas. A seasonal high water table is between depths of 0 and 10 inches for 6 to 8 months. Depressions have water up to 24 inches above the surface for 6 to 8 months. Slopes range from 0 to 1 percent. The soils are loamy, siliceous, thermic Arenic Albaqualfs.

Tooles soils are associated with Chaires, Leon, Nutall, Surrency, and Bayvi soils. Chaires and Leon soils have a spodic horizon. Nutall soils have sandy A and E horizons less than 20 inches thick. Surrency soils do not have limestone bedrock in the lower part of the profile and have a base saturation of less than 35 percent in the subsoil. Bayvi soils do not have an argillic horizon.

Typical pedon of Tooles fine sand, from an area of Nutall-Tooles complex; in a wooded area, 1.25 miles east of State Road 59 and 2.5 miles north of U.S.

Highway 98, SW1/4NE1/4NW1/4 sec. 15, T. 3 S., R. 3 E.

A—0 to 5 inches; black (5Y 2/1) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.
A/E—5 to 9 inches; very dark gray (10YR 3/1) (A) and light gray (10YR 6/1) (E) fine sand; single grained; loose; many medium and coarse roots; slightly acid; clear smooth boundary.
E1—9 to 17 inches; light gray (10YR 7/1) fine sand; common medium distinct brown (10YR 5/3) mottles; single grained; loose; common medium roots; neutral; clear wavy boundary.
E2—17 to 32 inches; brown (10YR 5/3) fine sand; many medium distinct light gray (10YR 6/1) mottles; single grained; loose; few medium roots; neutral; abrupt irregular boundary.
Btg—32 to 46 inches; light greenish gray (5GY 7/1) sandy clay loam; many fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; mildly alkaline; abrupt irregular boundary.
R—46 inches; limestone bedrock.

The A horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 1 or 2. The texture is fine sand or very fine sand. Soil reaction ranges from very strongly acid to slightly acid in areas that are not limed.

The E1 horizon has hue of 10YR, value of 3 to 7, and chroma of 1 or 2. The E2 horizon has hue of 10YR, value of 3 to 7, and chroma of 3 or 4. The texture of the E1 and E2 horizons is fine sand, sand, or very fine sand. Soil reaction ranges from strongly acid to neutral. Total thickness of the A and E horizons ranges from 20 to 40 inches.

The Bt horizon has hue of 10YR, 2.5Y, or 5GY, value of 4 to 7, and chroma of 1 or 2; or it is neutral. The texture is sandy loam, sandy clay, or sandy clay loam that is less than 35 percent clay. Soil reaction ranges from neutral to moderately alkaline.

Depth to limestone bedrock is about 40 to 60 inches.

Troup Series

The Troup series consists of well drained, nearly level to strongly sloping soils that formed in unconsolidated sandy and loamy marine sediments of the Coastal Plain. The soils are on summits, foot slopes, back slopes, and toe slopes of uplands. It does not have a high water table within a depth of 80 inches. Slopes range from 0 to 12 percent. The soils are loamy, siliceous, thermic Grossarenic Paleudults.

Troup soils are closely associated with Blanton, Lucy, and Orangeburg soils. Blanton soils are moderately well drained. Orangeburg soils have sandy A and E horizons less than 20 inches thick, and Lucy soils have sandy A and E horizons 20 to 40 inches thick.

Typical pedon of Troup fine sand, 0 to 5 percent slopes; in a pasture, 0.5 mile south of U.S. Highway 90 and 400 feet east of Old Tung Grove Road, NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

Ap—0 to 8 inches; dark brown (10YR 3/3) fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt wavy boundary.
E1—8 to 21 inches; brown (7.5YR 5/4) fine sand; single grained; loose; many fine and few medium roots; about 5 percent charcoal granules; strongly acid; gradual wavy boundary.
E2—21 to 43 inches; strong brown (7.5YR 5/6) fine sand; single grained; loose; common fine roots; few pockets of white (10YR 8/2) sand stripping; strongly acid; clear wavy boundary.
Bt1—43 to 49 inches; red (2.5YR 4/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; strongly acid; gradual wavy boundary.
Bt2—49 to 56 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.
Bt3—56 to 80 inches; red (10R 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; strongly acid.

Troup soils are medium acid to very strongly acid in the surface and subsurface layers except where lime has been added. They are strongly acid or very strongly acid in the subsoil. The solum is more than 80 inches thick. Thickness of the A and E horizon ranges from 40 to 79 inches.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. The A horizon is 5 to 9 inches thick.

The E horizon has hue of 5YR to 10YR, value of 5 to 8, and chroma of 4 to 8. The texture of the A and E horizons is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8; or it has hue of 5YR, 10R, or 2.5YR, value of 4 to 7, and chroma of 4 to 8. The texture is sandy loam, fine sandy loam, or sandy clay loam. The Bt horizon extends to a depth of more than 80 inches.

Formation of the Soils

In this section, the factors of soil formation are discussed and related to the soils in the county. The processes of soil formation are described, and the geology of the county is discussed.

Factors of Soil Formation

Soil is produced by forces of weathering on parent material. The kind of soil that develops depends on five major factors. These factors are the climate under which soil material exists after accumulation, the plant and animal life in and on the soil, the type of parent material, the relief of the land, and the length of time that the forces of soil formation act on the soil material.

The five soil forming factors are interdependent; each modifies the effect of the others. Any of the five factors can have more influence than the others on the formation of a soil and can account for most of its properties. For example, if the parent material is quartz sand, the soil generally has only weakly expressed horizons. In some places, the effect of the parent material is modified greatly by the effects of climate, relief, and plants and animals. A difference in any of the factors results in a different soil.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It determines the limits of the chemical and mineralogical characteristics of the soil. Many differences among soils in the county appear to reflect original differences in the parent material.

The soils of Jefferson County have three major kinds of parent material. The sandy, loamy, and clayey deposits of the uplands and flatwoods are sea-laid sediment of Miocene and Pleistocene age. Other relatively new soils are still forming in water-deposited material along streams and rivers. Where a considerable quantity of plant material accumulates and decay is limited by too much water, organic matter (muck) gradually develops.

Climate

The climate of Jefferson County is warm and humid and was similar during most of the period of soil formation. Summer is long and warm, and winter is short and mild. The climate is uniform throughout the county; therefore, it causes few differences among soils.

Rainfall and temperature are the major factors of climate that influence soil formation in the county. Because of the warm temperatures and abundant rainfall, chemical and biological actions are rapid. These conditions are favorable for the rapid decomposition of organic matter, and they hasten chemical reactions in the soil. The abundant rainfall leaches soluble bases, plant nutrients, and colloidal material downward. Consequently, most of the soils in this climate have low organic matter content and natural fertility and high acidity.

Plants and Animals

Plants and animals have an important role in the formation of soils. The kinds and numbers of plants and animals that live in and on the soil are governed largely by climate and to lesser and varying degrees by each of the other soil forming factors.

Plants and animals furnish organic matter, mix and stir the soil, and move plant nutrients from the lower to the upper horizons. They also help change structure and porosity of the soil.

Micro-organisms, including bacteria and fungi, help weather and breakdown minerals and decompose organic matter. They are most numerous in the upper few inches of the soil. Earthworms and small animals that live in the soil alter the chemical composition and mix the different layers of the soil. Plants also act on the soil chemically and churn it by root penetration.

Relief

Relief, or topography, modifies the soil by influencing the quantity of precipitation absorbed and retained in the soil, by influencing the rate that erosion removes soil material, and by directing movement of material in suspension or solution from one area to another.

Poorly drained or very poorly drained soils generally are in low, nearly level areas and in depressions. Water is received as runoff from adjacent higher areas. The absence of air in these waterlogged soils results in the reduction of iron in the soil. These soils are dominantly gray and are mainly along draingeways, in large swamps, and on the flatwoods.

The well drained soils are on nearly level to sloping ridges and side slopes on uplands where excess water readily drains away. As the slope increases, runoff increases in intensity, and erosion accelerates. These soils are well aerated and are dominantly yellow, brown, or red.

Where relief and position are intermediate, moderately well drained and somewhat poorly drained soils are dominant. These soils are brown or yellow but have gray mottles in the subsoil. The gray mottles indicate a fluctuating high water table.

Time

The length of time required for a soil to form depends mainly on the combined influences of the other soil-forming factors. If the soil-forming factors have been active for a long time, horizonation is stronger than if the same factors have been active for a relatively short time. Some basic minerals weather fairly rapidly; other minerals are chemically inert and show little change over long periods. The rate of movement of fine particles within the soil to form various horizons varies under different conditions. In geologic terms, relatively little time has elapsed since the material in which the soils developed was laid down or emerged from the sea.

In Jefferson County, the dominant geological material is inactive. The sands are almost pure quartz and are highly resistant to weathering. The finer textured silts and clays are the product of earlier weathering.

Processes of Soil Formation

The main processes involved in the formation of soil horizons are accumulation of organic matter, leaching of calcium carbonate and bases, reduction and transfer of iron, and formation and translocation of silicate clay minerals. These process can occur in combination or singularly, depending on the intergration of the factors of soil formation.

Most soils in Jefferson have three main horizons, the A, B, and C; and in addition many soils have an E horizon.

The A horizon is the surface layer, and it is the horizon of maximum accumulation of organic matter. The E horizon, generally called the subsurface layer, is the horizon of maximum loss of soluble or suspended material. Leon soils have both an A horizon and an E horizon. Some soils do not have an E horizon. Organic matter has accumulated in the surface layer of all soils in the county to form an A horizon. The content of organic matter varies in different soils and ranges from very low to high because of differences in relief and wetness.

The B horizon, or subsoil, lies immediately below the A horizon or the E horizon. It is the horizon of maximum accumulation of dissolved or suspended material, such as organic matter, iron, or clay. In very young, sandy soils, such as Lakeland soils, the B horizon has not yet developed.

The C horizon is the substratum or underlying material. It has been affected very little by the soil forming processes, but it may be somewhat modified by weathering.

The chemical reduction and transfer of iron, called gleying, is evident in the wet soils of the county. Gleying, shown by gray color in the subsoil and gray mottles in other horizons, indicates the reduction and loss of iron. In some sandy soils, the clean sand grains are gray and the color has no relation to gleying. Some horizons have reddish-brown mottles and concretions, indicating a segregation of iron.

Leaching of carbonates and bases has occurred in all of the productive soils of the county. This contributes to the development of the horizons and to the inherent poor fertility of these soils.

Geology

The sediment in Jefferson County ranges in age from Paleozoic to Recent. To date, the deepest penetration of subsurface sediment in the area occurred at a depth of 7,909 feet mean sea level (MSL). The sediment obtained from an oil well was identified as Paleozoic quartzitic sandstones deposited about 500 million years ago. In contrast, surface and near-surface occurrences include unconsolidated sand, limestone, and highly indurated dolomites ranging in age from the Eocene Epoch (36 to 58 million years ago) to the Recent. The oldest outcrops are Oligocene Epoch (35 to 22 million years ago) dolomite and limestone.

Ocala Group

The Ocala Group limestone includes, in ascending order, the Inglis Formation, the Williston Formation, and the Crystal River Formation. These limestones, which form an intergral part of the Floridan Aquifer, have near-surface occurrences throughout the county.

The Inglis Formation is tan, soft to medium hard, and moderately porous. It is gypsiferous, microfossiliferous, partly dolomitized, crystalline limestone (calcarenite). Frequently similar in lithology to the underlying older Avon Park Limestone, the Inglis Formation is often distinguished on the basis of microfossils. In the vicinity of Monticello, the top of the formation occurs at -780 feet (MSL) and the base at -880 feet (MSL), a thickness of 100 feet.

The Williston Formation is pale orange and moderately porous. It is microfossiliferous, crystalline to partly recrystallized limestone (calcarenite). Varying in thickness throughout the county, it was in the interval from 705 to 780 feet below land surface, a thickness of 75 feet, in a well near Monticello.

Very similar in lithology to the underlying Williston Formation, the Crystal River Formation is pale orange, soft to medium hard, and highly to moderately porous. It is microfossiliferous, partly recrystallized limestone (calcarenite). The distinctive foraminifera genera Lepidocyclina is common to abundant. It is often used as a guide in distinguishing this formation from the overlying younger Suwannee Formation. In the vicinity of Monticello, the Crystal River Formation is in wells at a depth of -500 to -700 feet (MSL), a thickness of 200 feet.

Suwannee Limestone

The oldest sediments exposed in Jefferson County are limestone and dolomites belonging to the Suwannee Limestone Formation that was deposited during the Oligocene Epoch. The Suwannee Limestone lies unconformably upon the Crystal River Formation and unconformably underlies the St. Marks or Hawthorn Formation. It also underlies the younger Miccosukee Formation. Below the Cody Scarp, the Suwannee is covered by Pleistocene deposits and scattered outliers of the Hawthorn Formation.

The Suwannee Formation is a marine limestone consisting of a partly recrystallized limestone (calcarenite). It is very pale orange, finely crystalline, and weakly cemented. It has calcium carbonate and moderate to high porosity and is very fossiliferous. Chemical tests indicate a composition that is nearly 97 percent calcium carbonate.

In various locations, the top of the formation is silicified in the subsurface. In addition, well cutting observations indicate dolomitization of the limestone has occurred in the subsurface at different depths as well as in the outcrop area. This process of secondary dolomitization can be readily observed along the Aucilla River.

Measurements of the formation's thickness are generalized because most of the information available is from wells that terminate in the Suwannee. The maximum thickness encountered was in a Southern State Oil Corporation oil test in which 335 feet of limestone was penetrated.

Fossiliferous outcrops of this formation can be observed along the Suwannee River from White Springs to Ellaville. Other exposures can be observed in the vicinity of the Wakulla-Jefferson County line eastward along the edge of sections 31 and 32, T. 3 S., R. 3 E. for about two miles before turning northward and intersecting U.S. Highway 98 on the east side of Gum Creek. From U.S. Highway 98, the outcrop pattern continues northward, almost paralleling County Highway 59 and finally merging with the Cody Scarp north of the town of Wacissa.

The Suwannee Formation is also exposed in the bed of the Wacissa River from just below its headwaters near Wacissa to the confluence with the Aucilla River above Nutall Rise. In addition, silicified or dolomitized Suwannee Limestone forms the bottom of the Gulf of Mexico off Jefferson County.

The Suwannee Limestone, in many areas, is covered by a thin veneer of Pleistocene sand. However, from just below Lamont to just north of Nutall Rise, it is almost continually exposed along the banks of the Aucilla River either as silicified boulders or massive dolomite beds. The dolomite beds and the silicified boulders often form rapids along the river.

St. Marks Formation

Early Miocene sediment unconformably overlie the Suwannee Limestone in many parts of Jefferson County. The St. Marks Formation is white to very pale orange, finely crystalline, sandy, silty, and clayey limestone (calcilutite). It has low to moderate porosity and contains molluscan casts and a few species of foraminifera. The calcilutite has been partly dolomitized and silicified in the outcrop area as well as in the subsurface. In the outcrop area, located in the lower southwestern part of the county, the St. Marks Formation is partly recrystallized limestone (calcilutite).

In contrast to the underlying Suwannee Limestone, the St. Marks Formation does not occur in all parts of Jefferson County but is confined to two separate areas. The largest area is irregularly shaped and occurs in over half of the northwestern and central parts of the county. The smaller area is in an oblong-shaped region in southwestern Jefferson County.

Outcrops of the St. Marks Formation are rare as the greater part of the deposits are covered by younger sediment. The infrequent exposures of this formation occur in sinkholes, ditches, and stream valleys. The thickness varies from very thin in the central part of the county to a maximum observed thickness of 120 feet in a core drilled in the northwestern corner of the county. The St. Marks Formation can be seen in the ditches along U.S. Highway 98 from the Wakulla County line eastward to Gum Creek. One of the thickest exposures occurs in a sinkhole located in the southeast corner of land lot 154, Monticello, NE quadrangle.

Hawthorn Formation

Overlying the St. Marks Formation is the younger Miocene age Hawthorn Formation, which is in the subsurface layer throughout most of Jefferson County north of the Cody Scarp. The Hawthorn Formation consists of pale olive, light greenish gray, yellowish gray, light gray, and moderate yellow, sandy, waxey, phosphatic clay. The clay contains phosphorite grains and is interbedded with very fine to medium, clayey quartz sands that also contain phosphorite. The clays and sands are frequently cherty and often associated with stringers of sandy calciluties.

Varible in thickness, the Hawthorn Formation has a minimum thickness of 50 to 70 feet in central and southern Jefferson County. On the eastern side of Jefferson County in a basin deposit, it is 240 feet thick.

The thickest exposure of Hawthorn deposits is at a sinkhole called the Cascades. At this site near Lloyd, a section of the Hawthorn Formation measuring 51 feet was identified.

The Hawthorn Formation lies unconformably upon either the St. Marks Formation or the Suwannee Limestone. It underlies the Miccosukee Formation or the Pliestocene sands.

Miccosukee Formation

A prominent feature throughout the county is the varicolored, hetrogeneous complex of sediment referred to as the Miccosukee Formation. Overlying the Hawthorn Formation, the Miccosukee Formation covers all of Jefferson County from the Cody Scarp northward to the Georgia State line.

This formation is an aggregate of lenticular clayey sands and clay beds that can individually be traced laterally for only short distances. The sediment is moderately sorted to poorly sorted, coarse to fine-grained, varicolored, clayey, quartz sand and montmorillonitic, kaolinitic, varicolored, sandy clays. The frequently crossbedded sands contain crossbedded thin laminae of white to light gray clay. X-ray diffraction patterns indicate that the laminae associated with both quartz sands is kaolinite.

In many places, the Miccosukee Formation is deeply weathered laterites. Having experienced intense weathering, the bedding that was once present has been destroyed, giving exposed sediment a massive appearance. The Miccosukee is extremely variable in thickness, a condition attributed in part to extensive weathering and associated erosion. A maximum thickness of 160 feet was encountered in the central part of the county. This suggests that the top of some of the highest hills may represent the original depositional surface.

The formation can be observed in numerous roadcuts throughout the northern part of the county. It can be seen at a roadcut on the east side of U.S. Highway 19, about 3.1 miles south of the Georgia-Florida State line. The sediment in this section illustrates rapid sedimentation changes including channel cut and fill features of a deltaic environment.

Pleistocene to Recent Sediments

Surficial sediment of Pleistocene age form much of the land surface from the Cody Scarp near Wacissa to the Gulf of Mexico. The Pleistocene sediment also makes up a series of sand hills located northwest of Wacissa. Less widespread sediment of Recent age are confined primarily to the present stream valleys.

The Pleistocene deposits forming the Gulf Coastal Lowlands south of the Cody Scarp and very fine to medium quartz sand that has blue-green to light olive, montmorillonitic clay lenses. Deposits in the sandhill area are perdominantly fine to medium, angular to subrounded, clayey, quartz sand. The Recent sediment is essentially reworked Pleistocene quartz sand and quartz sand derived from the Miccosukee Formation.

The Pleistocene deposits range in thickness from 2 to 3 feet at the coastline to 20 feet at the toe of the Cody Scarp. These deposits thicken to 7 feet at the Jefferson-Wakulla County line and reach a thickness of 10 feet at the eastern edge of the county.

The Pleistocene and Recent sediment unconformably overlie the St. Marks Formation and the Suwannee Limestone in the southern part of the county. In the sandhill areas, Pleistocene sand unconformably overlies the Miccosukee Formation.

Geologic History

From the beginning of late Cretaceous age until early Middle Eocene age, Jefferson County was in an area of clastic deposition. However, changes in the depositional environment occurred at the beginning of the early Middle Eocene age resulting in carbonates becoming the dominant sediment.

It was during this time that the Middle Eocene Lake City Limestone, the Eocene Ocala Group limestone, and the Oligocene Suwannee Limestone were deposited. These limestone formations were deposited in a warm, shallow, open sea.

At the close of the Oligocene Epoch, a period of predominantly clastic sedimentation took place. The areas of this deposit were not high enough, however, to prevent the deposition of the St. Marks Formation by encroaching Early Miocene seas.

At the end of Early Miocene time, extensive erosion took place in Jefferson County. This was especially pronounced in the eastern part of the county where the St. Marks Formation is very thin or missing, resulting in the Hawthorn Formation lying directly upon the Suwannee Limestone.

Another influx of clastic sediment generally masked carbonate deposition during the Middle Miocene Epoch. It was at this time that the Hawthorn Formation, consisting primarily of phosphatic sands and clays, was deposited. At the cessation of Hawthorn deposition, the predominantly marine environment changed to a deltaic environment. The Miccosukee deposits forming this delta complex are widespread, covering many square miles to the west and east of Jefferson County. The age of these deposits has been established, at least in part, as Late Miocene. This determination was on the basis of land mammals in Jefferson County.

The beginning of the Pleistocene Epoch saw the return of the seas over much of Jefferson County, resulting in the formation of the Gulf Coastal Lowlands in the southern part of the county. It was during this time that the Aucilla River and many of the creeks were formed. Other changes included the erosion and subsequent removal of most of the St. Marks Formation from the Gulf Coastal Lowlands.

Sea level has been fairly stationary since the beginning of the Recent Epoch. Deposition presently occurring in Jefferson County is restricted to alluvium along the many streams and peat and mud in the lakes and coastal marshes.

References

(1) American Association of State Highway and Transportation Officials. 1982. Standard specifications for highway materials and methods of sampling and testing. Ed. 13, 2 vol., illus.

(2) American Society for Testing and Materials. 1985. Standard test method for classification of soils for engineering purposes. ASTM Stand. D 2487.

(3) Applequist, M.B. 1959. Soil-site studies of southern hardwoods. In Southern forest soils—eighth annual forestry symposium. La. State Univ.

(4) Broadfoot, W.M. and R.M. Krinard, 1959. Guide for evaluating sweetgum sites. U.S. Dep. Agr., Forest Serv., South. Forest Exp. Stn. Occas. Pap. 176, 8 pp., illus.

(5) Broadfoot, W.M. 1963. Guide for evaluating water oak sites. U.S. Dep. Agric., Forest Serv., South. Forest Exp. Stn. Res. Pap. SO-1, 8 pp., illus.

(6) Coile, T.S. and F.X. Schumacher. 1953. Site index of young stands of loblolly and shortleaf pines in the Piedmont Plateau Region. J. For. 51: 432-435, illus.

(7) Florida Department of Agriculture. 1979. Forest statistics for northwest Florida. Div. Forestry.

(8) Florida Department of Agriculture. 1981. Estimated county income from forest products. Div. Forestry.

(9) Puri, Harbans S. and Robert O. Vernon. 1964. Summary of the geology of Florida and a guidebook to the classic exposures. Fla. Geol. Surv. Spec. Pub. 5, revised. 312 pp.

(10) United States Department of Agriculture. 1929 (revised 1976). Volume, yield, and stand tables for second growth southern pines. Forest Serv. Misc. Publ. 50, 302 pp., illus.

(11) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

(12) United States Department of Agriculture. 1981. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. (Supplements replacing pp. 173-188 issued May 1962.)

(13) United States Department of Agriculture. 1984. Procedures for collecting soil samples and methods of analysis for soil survey. Soil Surv. Invest. Rep. 1, 68 pp., illus.

(14) United States Department of Agriculture. 1985. Site curves and yield of second growth baldcypress. Soil Conserv. Serv. Tech Note No. 5, 2 pp.

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. Soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Aquifer. A layer or a group of layers of geologic material (consolidated or unconsolidated) that contains sufficient saturated, permeable material to conduct ground water and to yield economically significant quantities of ground water to wells and springs.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

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

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Black slope. The sloping area below the shoulder.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Broad-base terrace. A ridge-type terrace built to control erosion by diverting runoff along the contour at a nonscouring velocity. The terrace is 10 to 20 inches high and 15 to 30 feet wide and has gently sloping sides, a rounded crown, and a dish-shaped channel along the upper side. It may be nearly level or have a grade toward one or both ends.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

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.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a fragment.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels, i.e., clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). The volume of soft soil decreases excessively 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.

Confined aquifers. An aquifer bounded above and below by impermeable layers or by layers of distinctly lower permeability than that of the aquifer.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. 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. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms. The Lco horizon is a limnic layer that contains many fecal pellets.

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 (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazingland for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of 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 they are wet 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.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess humus (in tables). Too much organic matter for the intended use.

Excess lime (in tables). Excess carbonates in the soil restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium is in the soil. The resulting poor physical properties restrict the growth of plants.

Excess sulfur (in tables). An excessive amount of sulfur is in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The movement of water into the soil is rapid.

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.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill. Raise the surface level of the land to a desired level with suitable soil material.

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

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

Flatwoods. Broad, nearly level, low ridges of dominately poorly drained soils characteristically vegetated with an open forest of pines and a ground cover of sawpalmetto and pineland threeawn.

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

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

Forb. Any herbaceous plant that is not a grass or a sedge.

Formation (geological). A convenient geological unit, of considerable thickness and lateral extent, used in mapping, describing, or interpreting the geology of a region.

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

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

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

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

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

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

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

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. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

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

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

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have 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 in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-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.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. The relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction.

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.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

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

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

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landshaping. Rearrangement of soil material by cutting and filling to form a more suitable site for the intended use.

Large stones (in tables). Rock fragments that are 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine 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).

Mounding. Filling on area to be used for an absorption field with suitable soil material to a level above the water table necessary to meet local and state requirements for proper functioning.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple 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.

Narrow-base terrace. A terrace no more than 4 to 8 feet wide at the base. A narrow-base terrace is similar to a broad-base terrace, except for the width of the ridge and channel.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Open space. A relatively undeveloped green or wooded area provided mainly within an urban area to minimize feelings of congested living.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Potentiometric map. A map showing the elevation of a potentiometric surface of an aquifer by means of contour lines.

Potentiometric surface. An imaginary surface representing the static head of ground water and defined by the level to potentiometric surface.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the 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

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Rippable bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). There is a shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salty water (in tables.) Water is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

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.

Saprolite (soil science). Unconsolidated, residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The transition zone from the back slope to the summit of an upland. The surface is dominantly convex in profile and erosional in origin.

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.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). The soil mass is susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slough. A broad, poorly defined drainageway subject to sheet flow during the rainy season.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium absorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity are—

	SAR
Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil blowing (in tables). Soil easily moved and deposited by wind.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, thickness of the line can be one fragment or more. It generally overlies material that weathered in place, and it is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsidence. The sinking of an organic soil to a lower level after lowering the high water table.
Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.
Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.
Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.
Summit. The high, nearly level or gently sloping, interfluve area above the shoulder.
Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.
Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.
Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
Thin layer (in tables). Otherwise suitable soil material is too thin for the specified use.
Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.
Too clayey (in tables). Soil slippery and sticky when wet and slow to dry.
Too sandy (in tables). Soil soft and loose; droughty and low in fertility.
Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
Trace elements. Chemical elements, such as zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.
Unconfined aquifer. An aquifer having a water table.
Unstable fill (in tables). There is a risk of caving or sloughing on banks of fill material.
Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.
Variegation. Refers to patterns of contrasting colors that are assumed to be inherited from the parent material rather than to be the result of poor drainage.
Water control. To regulate the water table through the use of canals, ditches, tile, pumping, or any other appropriate method.
Water table (geologic). That surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere.
Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.
Well graded. Refers to soil material consisting of course grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. This contrasts with poorly graded soil.
Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Based on data recorded at Monticello, Florida]

Month	Temperature 1/				Precipitation 2/			Soil temperature at 4 inches	
	NWS 3/ average daily	Average daily	Average daily maximum	Average daily minimum	Average daily	Average daily maximum	Average daily minimum	Average daily maximum	Average daily minimum
	°F	°F	°F	°F	In	In	In	°F	°F
January	52.7	50	61	38	4.01	10.85	0.09	60	47
February	54.8	50	60	28	4.30	8.36	0.60	62	47
March	60.4	59	72	47	5.19	21.14	0.58	72	54
April	68.0	67	80	54	4.28	13.02	0.26	84	64
May	74.5	72	85	60	3.95	9.78	0.18	90	70
June	79.4	78	89	66	5.69	13.23	0.07	95	76
July	80.6	79	91	69	7.08	17.58	2.63	94	77
August	80.5	79	90	69	5.73	9.23	1.91	94	77
September	77.2	76	87	65	5.30	23.35	0.50	92	76
October	68.9	66	80	53	2.60	11.77	0.00	82	66
November	59.6	59	70	46	2.62	9.61	0.12	70	55
December	53.3	52	65	39	3.92	11.35	0.56	62	49
Year	---	---	---	---	54.70	88.18	30.06	---	---

1/ Data recorded in the period 1962 to 1978.
2/ Data recorded in the period 1937 to 1978.
3/ National Weather Service

TABLE 2.--FREEZE DATA

Freeze threshold temperature	Mean date of last spring occurrence	Mean date of first fall occurrence	Mean number of days between dates
°F			
32	March 3	November 23	265
28	February 14	December 3	293
24	January 22	December 22	335

TABLE 3.--LIMITATIONS AND POTENTIAL PRODUCTIVITY OF MAP UNITS ON THE GENERAL SOIL MAP

[The rating for each general soil map unit is based on the dominant soil or soils in the general soil map unit]

Map unit and component soils	Extent of area	Limitations for-- Cropland	Pasture	Sanitary facilities	Building sites	Recreation uses	Roads and streets	Potential productivity for woodland 1/
	Pct							
1. Chipley-Alpin-Ortega	1.6	Severe	Moderate	Severe	Slight	Slight	Severe	High.
Chipley	30.0	Severe: droughty, low fertility.	Moderate: droughty, low fertility.	Severe: seepage, wetness, too sandy.	Moderate: wetness.	Moderate: wetness.	Severe: too sandy.	High.
Alpin	24.0	Severe: droughty, low fertility.	Moderate: droughty, low fertility.	Severe: seepage, too sandy.	Slight	Slight	Severe: too sandy.	High.
Ortega	13.0	Severe: droughty, low fertility.	Moderate: droughty, low fertility.	Severe: seepage, too sandy.	Slight	Slight	Severe: too sandy.	Moderately high.
Other	33.0	---	---	---	---	---	---	---
2. Albany-Plummer-Blanton	11.9	Severe	Moderate	Severe	Moderate	Moderate	Severe	High.
Albany	26.0	Severe: periodic wetness, droughtiness.	Moderate: periodic wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: sandy surface, wetness.	High.
Plummer	24.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: sandy surface, wetness.	High.
Blanton	11.0	Severe: droughtiness, rapid leaching of plant nutrients.	Moderate: droughtiness, low fertility.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Slight	Severe: sandy surface.	Moderately high.
Other	39.0	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 3.--LIMITATIONS AND POTENTIAL PRODUCTIVITY OF MAP UNITS ON THE GENERAL SOIL MAP--Continued

Map unit and component soils	Extent of area	Limitations for--						Potential productivity for woodland [1]
		Cropland	Pasture	Sanitary facilities	Building sites	Recreation uses	Roads and streets	
	Pct							
3. Orangeburg-Dothan-Fuquay	36.1	Moderate	Slight	Moderate	Slight	Slight	Moderate	High.
Orangeburg	25.0	Moderate: erosion.	Slight	Moderate: slow percolation.	Slight	Slight	Moderate: slope.	High.
Dothan	22.0	Moderate: erosion.	Slight	Severe: slow percolation, wetness.	Slight	Slight	Moderate: slope.	High.
Fuquay	19.0	Moderate: thick sandy surface.	Slight	Moderate: wetness, slow percolation.	Slight	Slight	Moderate: too sandy, slope.	Moderately high.
Other	34.0	---	---	---	---	---	---	---
4. Orangeburg-Faceville-Dothan	6.0	Moderate	Slight	Moderate	Slight	Slight	Moderate	High.
Orangeburg	33.0	Moderate: erosion.	Slight	Moderate: slow percolation.	Slight	Slight	Moderate: slope.	High.
Faceville	32.0	Moderate: erosion.	Slight	Moderate: slow percolation.	Slight	Moderate: too clayey, slow percolation.	Moderate: slope.	Moderately high.
Dothan	14.0	Moderate: erosion.	Slight	Severe: slow percolation, wetness.	Slight	Slight	Moderate: slope.	High.
Other	21.0	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 3.--LIMITATIONS AND POTENTIAL PRODUCTIVITY OF MAP UNITS ON THE GENERAL SOIL MAP--Continued

Map unit and component soils	Extent of area	Limitations for-- Cropland	Pasture	Sanitary facilities	Building sites	Recreation uses	Roads and streets	Potential productivity for woodland 1/
	Pct							
5. Surrency-Pelham-Pamlico	12.8	Severe	Severe	Severe	Severe	Severe	Severe	High.
Surrency	38.0	Severe: wetness.	Severe: wetness.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding.	High 2/.
Pelham	25.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	High 2/.
Pamlico	12.0	Severe: wetness.	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, ponding.	Unsuited.
Other	25.0	---	---	---	---	---	---	---
6. Byars-Pelham-Leefield	1.5	Severe	Severe	Severe	Severe	Severe	Severe	High.
Byars	48.0	Severe: wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	High 2/.
Pelham	21.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	High 2/.
Leefield	15.0	Moderate: wetness.	Slight	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: sandy surface.	Moderately high.
Other	16.0	---	---	---	---	---	---	---
7. Plummer, flooded	0.9	Severe	Severe	Severe	Severe	Severe	Severe	Moderately high.
Plummer	75.0	Severe: wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Moderately high 2/.
Other	25.0	---	---	---	---	---	---	---
8. Bayvi	1.0	Severe	Severe	Severe	Severe	Severe	Severe	Unsuited.
Bayvi	65.0	Severe: wetness, salinity.	Severe: wetness, salinity.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Unsuited.
Other	35.0	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 3.--LIMITATIONS AND POTENTIAL PRODUCTIVITY OF MAP UNITS ON THE GENERAL SOIL MAP--Continued

Map unit and component soils	Extent of area	Limitations for-- Cropland	Pasture	Sanitary facilities	Building sites	Recreation uses	Roads and streets	Potential productivity for woodland 1/
	Pct							
9. Chaires-Leon--------	15.3	Severe---------	Severe---------	Severe----------	Severe---------	Severe---------	Severe----	High.
Chaires-----------	48.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, sandy surface.	High.
Leon--------------	13.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, sandy surface.	Moderately high.
Other-------------	39.0	---	---	---	---	---	---	---
10. Nuttall-Tooles, flooded-----------	4.8	Severe---------	Severe---------	Severe----------	Severe---------	Severe---------	Severe----	Moderately high 3/.
Nuttall, flooded	40.0	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Moderately high 3/.
Tooles, flooded	38.0	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Moderately high 3/.
Other------------	22.0	---	---	---	---	---	---	---
11. Tooles-Nutall------	7.5	Severe---------	Severe---------	Severe----------	Severe---------	Severe---------	Severe----	Moderately high.
Tooles------------	36.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderately high.
Nutall------------	28.0	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderately high.
Other-------------	36.0	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 3.--LIMITATIONS AND POTENTIAL PRODUCTIVITY OF MAP UNITS ON THE GENERAL SOIL MAP--Continued

Map unit and component soils	Extent of area	Limitations for--						Potential productivity for woodland 1/
		Cropland	Pasture	Sanitary facilities	Building sites	Recreation uses	Roads and streets	
	Pct							
12. Chiefland-Chiefland, flooded	0.6	Severe	Severe	Severe	Slight	Slight	Severe	Moderately high.
Chiefland	40.0	Severe: wetness.	Severe: periodic droughts.	Severe: depth to rock.	Slight	Slight	Severe: too sandy.	Moderately high.
Chiefland, flooded	20.0	Severe: wetness, flooding.	Severe: periodic droughts, flooding.	Severe: depth to rock.	Severe: flooding.	Severe: flooding.	Severe: too sandy, flooding.	Moderately high.
Other	40.0	---	---	---	---	---	---	---

1/ The soil is rated for potential productivity of pine trees unless otherwise indicated. See table 7 for management concerns.
2/ The potential productivity is based on drained condition for this soil.
3/ The soil is rated for potential productivity of hardwoods.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
2	Ortega fine sand, 0 to 5 percent slopes	869	0.2
3	Chipley fine sand, 0 to 5 percent slopes	2,207	0.6
4	Surrency fine sand	32,280	8.2
5	Fuquay fine sand, 0 to 5 percent slopes	24,896	6.3
6	Dothan loamy fine sand, 2 to 5 percent slopes	30,285	7.7
7	Dothan loamy fine sand, 5 to 8 percent slopes, eroded	5,065	1.3
8	Chaires fine sand	28,391	7.2
9	Leon fine sand	7,508	1.9
10	Rains fine sandy loam	2,861	0.7
11	Lucy loamy fine sand, 0 to 5 percent slopes	11,190	2.9
12	Lucy loamy fine sand, 5 to 8 percent slopes	2,281	0.6
13	Orangeburg sandy loam, 2 to 5 percent slopes	26,080	6.6
14	Orangeburg sandy loam, 5 to 8 percent slopes, eroded	11,616	3.0
15	Orangeburg sandy loam, 8 to 12 percent slopes, eroded	4,943	1.3
16	Blanton fine sand, 0 to 5 percent slopes	7,587	1.9
17	Troup fine sand, 0 to 5 percent slopes	5,066	1.3
18	Troup fine sand, 5 to 8 percent slopes	987	0.3
19	Bibb loamy sand, frequently flooded	1,700	0.4
20	Albany sand	16,052	4.1
21	Bonifay fine sand, 0 to 5 percent slopes	4,586	1.2
22	Plummer fine sand	18,525	4.7
23	Pelham fine sand	18,576	4.7
24	Fuquay fine sand, 5 to 8 percent slopes	2,195	0.6
25	Pits	578	0.1
26	Sapelo fine sand	6,645	1.7
28	Alpin fine sand, 0 to 5 percent slopes	1,320	0.3
30	Pamlico-Dorovan mucks	15,957	4.1
31	Faceville fine sandy loam, 2 to 5 percent slopes	6,314	1.6
32	Faceville fine sandy loam, 5 to 8 percent slopes, eroded	1,658	0.4
33	Leefield fine sand	8,874	2.3
34	Lakeland sand, 0 to 5 percent slopes	253	0.1
35	Rutlege fine sand	1,978	0.5
36	Lynchburg loamy fine sand	1,172	0.3
38	Miccosukee fine sandy loam	1,233	0.3
39	Cowarts loamy fine sand, 2 to 5 percent slopes	2,265	0.6
41	Byars fine sandy loam, frequently flooded	2,793	0.7
42	Faceville loamy fine sand, 8 to 12 percent slopes, eroded	103	*
43	Alpin fine sand, 5 to 8 percent slopes	125	*
44	Troup fine sand, 8 to 12 percent slopes	296	0.1
45	Plummer fine sand, frequently flooded	5,510	1.4
46	Cowarts loamy fine sand, 5 to 8 percent slopes, eroded	1,438	0.4
47	Nutall-Tooles complex	13,912	3.5
52	Mascotte sand	1,205	0.3
54	Leon-Chaires fine sands	1,809	0.5
55	Lucy loamy fine sand, 8 to 12 percent slopes	274	0.1
56	Tifton gravelly loamy fine sand, 2 to 5 percent slopes	458	0.1
57	Tifton gravelly loamy fine sand, 5 to 8 percent slopes, eroded	124	*
58	Chiefland-Chiefland, frequently flooded, fine sands	1,528	0.4
61	Tooles-Tooles, depressional-Chaires, depressional, fine sands	17,067	4.3
62	Nutall-Tooles fine sands, frequently flooded	18,759	4.8
63	Bayvi muck	4,009	1.0
	Water	8,962	2.3
	Total	392,365	100.0

* Less than 0.1 percent.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Bahiagrass	Improved bermudagrass	Small grain grazed
		Bu	Bu	Lbs	Lbs	AUM*	TONS	AUM*
2--------------- Ortega	IIIs	---	---	---	---	6.0	5.0	3.0
3--------------- Chipley	IIIs	40	20	1,750	2,200	7.0	5.0	4.0
4--------------- Surrency	VIw	---	---	---	---	---	---	---
5--------------- Fuquay	IIs	90	35	2,400	2,900	8.5	6.0	5.0
6--------------- Dothan	IIe	120	55	2,400	3,600	9.0	7.0	6.0
7--------------- Dothan	IIIe	100	50	2,200	3,000	8.5	6.5	6.0
8--------------- Chaires	IVw	50	20	---	---	9.0	---	---
9--------------- Leon	IVw	50	---	---	---	7.5	---	---
10-------------- Rains	IIIw	110	40	2,300	---	10.0	---	---
11-------------- Lucy	IIs	90	35	2,200	3,000	8.5	7.0	5.0
12-------------- Lucy	IIIs	80	30	2,000	2,500	8.0	6.5	4.5
13-------------- Orangeburg	IIe	120	55	2,400	4,200	9.0	7.0	6.0
14-------------- Orangeburg	IIIe	110	50	2,200	4,000	8.5	6.0	5.5
15-------------- Orangeburg	IVe	90	40	1,800	3,600	8.0	5.5	5.0
16-------------- Blanton	IIIs	60	30	2,000	2,200	6.5	5.0	4.0
17-------------- Troup	IIIs	55	30	2,000	2,200	6.5	5.0	4.0
18-------------- Troup	IVs	50	20	1,800	1,800	6.0	4.5	3.5
19-------------- Bibb	Vw	---	---	---	---	---	---	---
20-------------- Albany	IIIw	65	35	2,100	1,700	7.0	5.0	4.0

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Bahiagrass	Improved bermudagrass	Small grain grazed
		Bu	Bu	Lbs	Lbs	AUM*	TONS	AUM*
21--------------- Bonifay	IIIs	55	25	2,000	2,200	6.5	5.0	4.0
22--------------- Plummer	IVw	---	---	---	---	7.0	6.0	---
23--------------- Pelham	Vw	---	---	---	---	---	---	---
24--------------- Fuquay	IIIs	80	30	2,200	2,600	8.0	5.5	4.5
25. Pits								
26--------------- Sapelo	IVw	50	20	---	---	7.5	---	---
28--------------- Alpin	IVs	50	20	1,700	2,000	6.5	4.0	3.0
30--------------- Pamlico-Dorovan	IVw	---	---	---	---	---	---	---
31--------------- Faceville	IIe	120	55	2,400	4,200	9.0	7.0	6.0
32--------------- Faceville	IIIe	90	50	2,200	4,000	8.5	6.0	5.5
33--------------- Leefield	IIw	85	35	2,300	2,200	8.0	6.0	5.0
34--------------- Lakeland	IVs	50	20	1,700	2,000	6.5	4.0	3.0
35--------------- Rutlege	VIw	---	---	---	---	---	---	---
36--------------- Lynchburg	IIw	115	45	2,400	3,000	9.0	6.5	6.0
38--------------- Miccosukee	IIe	120	40	2,400	3,600	9.0	7.0	6.0
39--------------- Cowarts	IIe	120	55	2,400	4,200	9.0	7.0	6.0
41--------------- Byars	VIw	---	---	---	---	---	---	---
42--------------- Faceville	IVe	80	30	1,800	3,000	8.0	5.5	5.0
43--------------- Alpin	VIs	35	15	1,600	1,600	6.0	3.5	3.0
44--------------- Troup	VIs	40	15	1,600	1,600	6.0	4.5	3.0

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Bahiagrass	Improved bermudagrass	Small grain grazed
		Bu	Bu	Lbs	Lbs	AUM*	TONS	AUM*
45--------------- Plummer, flooded	IVw	---	---	---	---	5.0	6.0	---
46--------------- Cowarts	IVe	110	50	2,200	4,000	8.5	6.0	5.5
47:								
Nutall----------	IVw	---	---	---	---	---	---	---
Tooles----------	IIIw	---	---	---	---	---	---	---
52--------------- Mascotte	IVw	---	---	---	---	8.0	---	---
54--------------- Leon-Chaires	IVw	---	---	---	---	8.2	---	---
55--------------- Lucy	IVs	---	---	---	---	7.5	---	5.5
56--------------- Tifton	IIe	120	40	2,400	3,600	9.0	7.0	6.0
57--------------- Tifton	IIIe	100	35	2,200	3,000	8.5	6.5	6.0
58--------------- Chiefland-Chiefland, flooded	IIIs	65	26	---	2,700	8.0	10.5	---
61:								
Tooles----------	IIIw	---	---	---	---	---	---	---
Tooles, depressional--	VIIw	---	---	---	---	---	---	---
Chaires, depressional--	VIw	---	---	---	---	---	---	---
62--------------- Nutall-Tooles	Vw	---	---	---	---	---	---	---
63--------------- Bayvi	VIIIw	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--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]
		Acres	Acres	Acres
I	---	---	---	---
II	112,767	66,635	10,046	36,086
III	75,144	18,463	32,567	24,124
IV	104,158	6,484	92,645	5,029
V	39,035	---	39,035	---
VI	42,592	---	42,171	421
VII	5,120	---	5,120	---
VIII	4,009	---	4,009	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class1/	
2------------------ Ortega	10S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	80	10	Slash pine, longleaf pine.
							Longleaf pine-------	70	6	
							Loblolly pine-------	80	8	
							Blackjack oak-------	---	---	
							Post oak------------	---	---	
							Turkey oak----------	---	---	
							Bluejack oak--------	---	---	
3------------------ Chipley	11S	Slight	Moderate	Slight	Slight	Moderate	Slash pine----------	90	11	Slash pine, longleaf pine.
							Loblolly pine-------	90	9	
							Longleaf pine-------	80	7	
							Post oak------------	---	---	
							Turkey oak----------	---	---	
							Blackjack oak-------	---	---	
4------------------ Surrency	2W	Slight	Severe	Severe	Slight	Severe	Pond cypress--------	75	2	2/
							Blackgum------------	---	---	
							Carolina ash--------	---	---	
							Red maple-----------	---	---	
							Sweetbay------------	---	---	
5------------------ Fuquay	11S	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	101	11	Slash pine, longleaf pine.
							Slash pine----------	95	12	
							Longleaf pine-------	67	5	
							Beech---------------	---	---	
							Black cherry--------	---	---	
							Hickory-------------	---	---	
							Southern red oak----	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
6, 7--------------- Dothan	11A	Slight	Slight	Slight	Slight	Moderate	Slash pine----------	89	11	Slash pine, loblolly pine, longleaf pine.
							Longleaf pine-------	70	6	
							Loblolly pine-------	94	10	
							Beech---------------	---	---	
							Black cherry--------	---	---	
							Hickory-------------	---	---	
							Southern red oak----	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class[1]	Trees to plant
8 Chaires	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	80	10	Slash pine, loblolly pine.
							Longleaf pine	65	5	
							Water oak	---	---	
							Laurel oak	---	---	
9 Leon	8W	Slight	Moderate	Moderate	Moderate	Moderate	Slash pine	70	8	Slash pine.
							Longleaf pine	65	5	
							Loblolly pine	74	7	
							Live oak	---	---	
							Water oak	---	---	
10 Rains	10W	Slight	Severe	Severe	Slight	Moderate	Loblolly pine	94	10	Loblolly pine, slash pine.
							Slash pine	91	12	
							Sweetgum	90	7	
							Blackgum	---	---	
11, 12 Lucy	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	84	11	Slash pine, longleaf pine, loblolly pine.
							Longleaf pine	70	6	
							Loblolly pine	80	8	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
13, 14, 15 Orangeburg	9A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine	86	9	Slash pine, loblolly pine.
							Slash pine	86	11	
							Longleaf pine	77	7	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class 1/	Trees to plant
16 Blanton	11S	Slight	Moderate	Moderate	Slight	Slight	Slash pine	90	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine	80	8	
							Longleaf pine	70	6	
							Bluejack oak	---	---	
							Turkey oak	---	---	
							Southern red oak	---	---	
							Live oak	---	---	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
17, 18 Troup	8S	Slight	Slight	Moderate	Slight	Moderate	Loblolly pine	82	8	Loblolly pine, slash pine, longleaf pine.
							Longleaf pine	74	6	
							Slash pine	84	11	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
19 Bibb	9W	Slight	Severe	Severe	Severe	Severe	Loblolly pine	90	9	Loblolly pine. 4/
							Sweetgum	90	7	
							Water oak	90	---	
							Blackgum	---	---	
							Slash pine	85	11	
							Laurel oak	---	---	
							Red oak	---	---	
20 Albany	10W	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine	95	10	Loblolly pine, slash pine.
							Slash pine	85	11	
							Longleaf pine	80	7	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
21 Bonifay	10S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	80	10	Slash pine.
							Longleaf pine	65	5	
							Loblolly pine	80	8	
							Post oak	---	---	
							Blackjack oak	---	---	
							Turkey oak	---	---	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
22 Plummer	11W	Slight	Severe	Severe	Severe	Severe	Slash pine	88	11	Loblolly pine, slash pine. 3/
							Loblolly pine	91	9	
							Longleaf pine	70	6	
							Sweetgum	---	---	
							Blackgum	---	---	
							Water oak	---	---	
							Red maple	---	---	
							Laurel oak	---	---	
23 Pelham	11W	Slight	Severe	Severe	Severe	Severe	Slash pine	85	11	Slash pine, loblolly pine. 3/
							Loblolly pine	85	8	
							Longleaf pine	80	7	
							Sweetgum	80	6	
							Blackgum	80	8	
							Water oak	80	---	
							Laurel oak	---	---	
							Red maple	---	---	
24 Fuquay	8S	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine	83	8	Slash pine, longleaf pine, loblolly pine.
							Slash pine	83	10	
							Longleaf pine	67	5	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class1/	Trees to plant
26----------------- Sapelo	7W	Slight	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	77	7	Loblolly pine, slash pine, longleaf pine.
							Slash pine----------	77	10	
							Longleaf pine-------	65	5	
							Live oak------------	---	---	
							Water oak-----------	---	---	
28----------------- Alpin	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	8	Slash pine, loblolly pine, longleaf pine, sand pine.
							Slash pine----------	75	9	
							Longleaf pine-------	70	6	
							Turkey oak----------	---	---	
							Post oak------------	---	---	
							Blackjack oak-------	---	---	
							Bluejack oak--------	---	---	
30: Pamlico-----------	7W	Slight	Severe	Severe	--------	--------	Baldcypress---------	108	7	2/
							Slash pine----------	70	8	
							Pond pine-----------	55	---	
							Cabbage palm--------	---	---	
							Blackgum------------	---	---	
							Laurel oak----------	---	---	
							Red maple-----------	---	---	
							Sweetbay------------	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
Dorovan-----------	7W	Slight	Severe	Severe	Severe	Severe	Baldcypress---------	108	7	2/
							Blackgum------------	70	7	
							Sweetbay------------	---	---	
							Swamp tupelo--------	---	---	
							Cabbage palm--------	---	---	
							Blackgum------------	---	---	
							Laurel oak----------	---	---	
							Red maple-----------	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class1/	
31, 32. Faceville	8A	Slight	Slight	Slight	Slight	Slight	Loblolly pine	82	8	Loblolly pine, slash pine, longleaf pine.
							Slash pine	80	10	
							Longleaf pine	65	5	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
33. Leefield	8W	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine	84	8	Loblolly pine, slash pine, longleaf pine.
							Slash pine	84	11	
							Longleaf pine	70	6	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
34. Lakeland	10S	Slight	Moderate	Moderate	Slight	Slight	Slash pine	80	10	Slash pine, sand pine, longleaf pine.
							Loblolly pine	80	8	
							Longleaf pine	65	5	
							Turkey oak	---	---	
							Blackjack oak	---	---	
							Post oak	---	---	
35. Rutlege	2W	Slight	Severe	Severe	Slight	Severe	Pond cypress	75	2	2/
							Loblolly pine	90	9	
							Sweetgum	90	7	
							Pin oak	85	4	
							Blackgum	---	---	
							Carolina ash	---	---	
							Red maple	---	---	
							Sweetbay	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class1/	
36------------------ Lynchburg	12W	Slight	Moderate	Slight	Slight	Severe	Slash pine----------	91	12	Slash pine, loblolly pine.
							Loblolly pine-------	86	9	
							Longleaf pine-------	74	6	
							Sweetgum------------	90	7	
							Southern red oak----	---	---	
							White oak-----------	---	---	
							Blackgum------------	---	---	
							Beech---------------	---	---	
							Black cherry--------	---	---	
							Hickory-------------	---	---	
							Magnolia------------	---	---	
							Water oak-----------	---	---	
38------------------ Miccosukee	9A	Slight	Slight	Slight	Slight	Slight	Loblolly pine-------	90	9	Slash pine, loblolly pine, longleaf pine.
							Slash pine----------	90	11	
							Longleaf pine-------	---	---	
							Beech---------------	---	---	
							Black cherry--------	---	---	
							Hickory-------------	---	---	
							Magnolia------------	---	---	
							Southern red oak----	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
39------------------ Cowarts	9A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	86	9	Loblolly pine, longleaf pine, slash pine.
							Slash pine----------	86	11	
							Longleaf pine-------	67	5	
							Beech---------------	---	---	
							Black cherry--------	---	---	
							Hickory-------------	---	---	
							Magnolia------------	---	---	
							Southern red oak----	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
41------------------ Byars	7W	Slight	Severe	Severe	Slight	Severe	Baldcypress---------	108	7	2/
							Loblolly pine-------	95	10	
							Sweetgum------------	90	7	
							Water tupelo--------	90	10	
							Slash pine----------	92	12	
							Water oak-----------	90	---	
							Blackgum------------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class 1/	Trees to plant
42 Faceville	8A	Slight	Slight	Slight	Slight	Slight	Loblolly pine	82	8	Loblolly pine, slash pine, longleaf pine.
							Slash pine	80	10	
							Longleaf pine	65	5	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
43 Alpin	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine	85	8	Slash pine, longleaf pine.
							Slash pine	75	9	
							Longleaf pine	70	6	
							Turkey oak	---	---	
							Post oak	---	---	
							Blackjack oak	---	---	
							Bluejack oak	---	---	
44 Troup	8S	Slight	Slight	Moderate	Slight	Moderate	Loblolly pine	82	8	Loblolly pine, longleaf pine, slash pine.
							Longleaf pine	74	6	
							Slash pine	84	11	
							Blackjack oak	---	---	
							Bluejack oak	---	---	
							Post oak	---	---	
							Turkey oak	---	---	
45 Plummer	7W	Slight	Severe	Severe	Severe	Severe	Baldcypress	108	7	Loblolly pine, slash pine. 3/
							Slash pine	88	11	
							Loblolly pine	91	9	
							Longleaf pine	70	6	
							Beech	---	---	
							Laurel oak	---	---	
							Red maple	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
46 Cowarts	9A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine	86	9	Loblolly pine, longleaf pine, slash pine.
							Slash pine	86	11	
							Longleaf pine	67	5	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
47:										
Nutall	6W	Slight	Severe	Moderate	Moderate	Severe	Longleaf pine	75	6	Longleaf pine, slash pine, loblolly pine.
							Slash pine	85	11	
							Loblolly pine	95	10	
							Cabbage palm	---	---	
							Laurel oak	---	---	
							Sweetgum	---	---	
							Red maple	---	---	
							Sweetbay	---	---	
							American elm	---	---	
							Live oak	---	---	
Tooles	11W	Slight	Severe	Moderate	Moderate	Severe	Slash pine	85	11	Slash pine, loblolly pine.
							Loblolly pine	95	10	
							Cabbage palm	---	---	
							Laurel oak	---	---	
							Sweetgum	---	---	
							Sweetbay	---	---	
							American elm	---	---	
							Live oak	---	---	
52 Mascotte	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	80	10	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine	80	8	
							Longleaf pine	70	6	
54:										
Leon	8W	Slight	Moderate	Moderate	Moderate	Moderate	Slash pine	70	8	Slash pine.
							Longleaf pine	65	5	
							Loblolly pine	74	7	
							Live oak	---	---	
							Water oak	---	---	
Chaires	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	80	10	Slash pine, loblolly pine.
							Longleaf pine	65	5	
							Water oak	---	---	
							Laurel oak	---	---	
55 Lucy	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	84	11	Slash pine, longleaf pine, loblolly pine.
							Longleaf pine	70	6	
							Loblolly pine	80	8	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class1/	
56, 57: Tifton	9A	Slight	Slight	Slight	Slight	Slight	Loblolly pine	86	9	Loblolly pine, slash pine, longleaf pine.
							Slash pine	86	11	
							Longleaf pine	72	6	
							Beech	---	---	
							Black cherry	---	---	
							Hickory	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Sweetgum	---	---	
							Water oak	---	---	
58: Chiefland	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	85	11	Slash pine, loblolly pine, longleaf pine.
							Longleaf pine	65	5	
							Hickory	---	---	
							Live oak	---	---	
							Post oak	---	---	
							Sweetgum	---	---	
							Beech	---	---	
							Black cherry	---	---	
							Magnolia	---	---	
							Southern red oak	---	---	
							Water oak	---	---	
61: Tooles	11W	Slight	Severe	Moderate	Moderate	Severe	Slash pine	85	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine	95	10	
							Cabbage palm	---	---	
							Laurel oak	---	---	
							Sweetgum	---	---	
							Sweetbay	---	---	
							American elm	---	---	
							Live oak	---	---	
Tooles	2W	Slight	Severe	Severe	Moderate	Severe	Pond cypress	75	2	2/
							Red maple	---	---	
							Sweetbay	---	---	
							Blackgum	---	---	
							Sweetgum	---	---	
							Carolina ash	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class1/	
61:										
Chaires	2W	Slight	Severe	Severe	Moderate	Severe	Pond cypress	75	2	2/
							Red maple	---	---	
							Sweetbay	---	---	
							Sweetgum	---	---	
							Carolina ash	---	---	
62:										
Nutall	7W	Slight	Severe	Severe	Moderate	Severe	Baldcypress	108	7	Loblolly pine, slash pine. 3/
							Sweetgum	80	6	
							Water tupelo	---	---	
							Water oak	---	---	
							Red maple	---	---	
							Loblolly pine	---	---	
							Cabbage pine	---	---	
							Blackgum	---	---	
							Sweetbay	---	---	
							Laurel oak	---	---	
Tooles	7W	Slight	Severe	Moderate	Moderate	Severe	Baldcypress	108	7	Loblolly pine, slash pine. 3/
							Red maple	---	---	
							Water tupelo	---	---	
							Water oak	---	---	
							Loblolly pine	---	---	
							Cabbage pine	---	---	
							Blackgum	---	---	
							Sweetbay	---	---	
							Laurel oak	---	---	

1/ Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

2/ Generally not suited to the production of pine trees because of ponding or extended wetness. They may be suited to cypress and hardwood production through natural regeneration.

3/ Planting of pine trees is feasible only where surface drainage is adequate.

4/ Slash and longleaf pines are not listed under trees to plant because of difficulty in establishing seedlings.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
2. Ortega	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
3. Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
4. Surrency	Severe: ponding, too sandy.	Severe: ponding, too sandy.		Severe: ponding, too sandy.	Severe: ponding.
5. Fuquay	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
6. Dothan	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
7. Dothan	Slight	Slight	Severe: slope.	Slight	Moderate: droughty.
8. Chaires	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
9. Leon	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
10. Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
11. Lucy	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
12. Lucy	Slight	Slight	Severe: slope.	Slight	Moderate: droughty.
13. Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.
14. Orangeburg	Slight	Slight	Severe: slope.	Slight	Slight.
15. Orangeburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
16. Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
17. Troup	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
18. Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty.
19. Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
20------------------ Albany	Severe: wetness.	Severe: too sandy.	Severe: too sandy, wetness.	Severe: too sandy.	Severe: droughty.
21------------------ Bonifay	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
22------------------ Plummer	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness.
23------------------ Pelham	Severe: ponding, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
24------------------ Fuquay	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
25: Pits.					
26------------------ Sapelo	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: droughty, wetness.
28------------------ Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
30: Pamlico-------------	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: excess humus, wetness.	Severe: wetness, excess humus.	Severe: wetness, excess humus.
Dorovan-------------	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: ponding, flooding, excess humus.
31------------------ Faceville	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
32------------------ Faceville	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.
33------------------ Leefield	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
34------------------ Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
35------------------ Rutlege	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding.
36------------------ Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
38-------------------- Miccosukee	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly.	Slight----------	Slight.
39-------------------- Cowarts	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
41-------------------- Byars	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
42-------------------- Faceville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
43-------------------- Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, slope.	Severe: too sandy.	Severe: droughty.
44-------------------- Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, slope.
45-------------------- Plummer	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness, flooding.
46-------------------- Cowarts	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
47:					
Nutall---------------	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
Tooles---------------	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
52-------------------- Mascotte	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness.
54:					
Leon-----------------	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Chaires--------------	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
55-------------------- Lucy	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: droughty, slope.
56-------------------- Tifton	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
57-------------------- Tifton	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
58:					
Chiefland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Chiefland	Severe: too sandy, flooding.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
61:					
Tooles	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
Tooles	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
Chaires	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding, droughty.
62:					
Nutall	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
Tooles	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness, flooding.
63 Bayvi	Severe: flooding, wetness, excess salt.	Severe: flooding, wetness, excess salt.	Severe: wetness, flooding, excess salt.	Severe: wetness, too sandy, flooding.	Severe: excess salt, wetness, flooding.

TABLE 9.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor."]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
2-----------------Ortega	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
3-----------------Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
4-----------------Surrency	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
5-----------------Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
6, 7--------------Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
8-----------------Chaires	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
9-----------------Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
10----------------Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
11, 12------------Lucy	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
13----------------Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
14, 15------------Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
16----------------Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
17, 18------------Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
19----------------Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
20----------------Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
21----------------Bonifay	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
22----------------Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
23----------------Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
24----------------Fuquay	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
25: Pits.										
26: Sapelo	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
28: Alpin	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
30:										
Pamlico	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Dorovan	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
31: Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
32: Faceville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
33: Leefield	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
34: Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
35: Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
36: Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
38: Miccosukee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
39: Cowarts	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
41: Byars	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
42: Faceville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
43: Alpin	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
44: Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
45: Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
46: Cowarts	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
47:										
Nutall	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
47:										
Tooles	Poor	Fair	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
52 Mascotte	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor.
54:										
Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
Chaires	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
55 Lucy	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
56 Tifton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
57 Tifton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
58:										
Chiefland	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Chiefland	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
61:										
Tooles	Poor	Fair	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Tooles	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Fair	Good.
Chaires	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Fair	Good.
62:										
Nutall	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Tooles	Poor	Fair	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
63 Bayvi	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Fair.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
2----------------- Ortega	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
3----------------- Chipley	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
4----------------- Surrency	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
5----------------- Fuquay	Slight---------	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty, too sandy.
6----------------- Dothan	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
7----------------- Dothan	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Moderate: droughty.
8----------------- Chaires	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
9----------------- Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
10---------------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
11---------------- Lucy	Moderate: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
12---------------- Lucy	Moderate: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
13---------------- Orangeburg	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
14---------------- Orangeburg	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
15---------------- Orangeburg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
16---------------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
17---------------- Troup	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
18---------------- Troup	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
19 Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
20 Albany	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
21 Bonifay	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Severe: droughty.
22 Plummer	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
23 Pelham	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
24 Fuquay	Slight	Slight	Moderate: wetness.	Moderate: slope.	Slight	Moderate: droughty, too sandy.
25: Pits.						
26 Sapelo	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: droughty, wetness.
28 Alpin	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
30: Pamlico	Severe: cutbanks cave, excess humus, wetness.	Severe: wetness, low strength.	Severe: wetness.	Severe: wetness, low strength.	Severe: wetness.	Severe: wetness, excess humus.
Dorovan	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.	Severe: ponding, flooding, excess humus.
31 Faceville	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.	Slight.
32 Faceville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
33 Leefield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
34 Lakeland	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
35 Rutlege	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
36 Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
38 Miccosukee	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Severe: low strength.	Slight.
39 Cowarts	Slight	Slight	Slight	Slight	Slight	Slight.
41 Byars	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
42 Faceville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
43 Alpin	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
44 Troup	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
45 Plummer	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
46 Cowarts	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
47:						
Nutall	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Tooles	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
52 Mascotte	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
54:						
Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
Chaires	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
55 Lucy	Moderate: cutbanks cave, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
56 Tifton	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
57 Tifton	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Slight.
58:						
Chiefland	Severe: cutbanks cave.	Slight	Moderate: depth to rock.	Slight	Slight	Severe: droughty.
Chiefland	Severe: cutbanks cave, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: droughty.
61:						
Tooles	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Tooles	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Chaires	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, droughty.
62:						
Nutall	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Tooles	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
63 Bayvi	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: excess salt, wetness, flooding.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2 Ortega	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
3 Chipley	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, seepage.
4 Surrency	Severe: ponding.	Severe: seepage, ponding.	Severe: ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.
5 Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight	Slight	Poor: too sandy.
6, 7 Dothan	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Moderate: wetness.	Slight	Good.
8 Chaires	Severe: wetness, percs slowly.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
9 Leon	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
10 Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
11, 12 Lucy	Slight	Severe: seepage.	Slight	Severe: seepage.	Good.
13, 14 Orangeburg	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
15 Orangeburg	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
16 Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
17, 18 Troup	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
19 Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
20------------------ Albany	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
21------------------ Bonifay	Moderate: wetness, percs slowly.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
22------------------ Plummer	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
23------------------ Pelham	Severe: wetness, flooding.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding, seepage.	Poor: wetness.
24------------------ Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight-----------	Slight-----------	Poor: too sandy.
25: Pits.					
26------------------ Sapelo	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
28------------------ Alpin	Slight------------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
30: Pamlico------------	Severe: wetness, poor filter.	Severe: seepage, excess humus, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Dorovan------------	Severe: flooding, ponding.	Severe: flooding, excess humus, ponding.	Severe: flooding, seepage, ponding.	Severe: flooding, ponding.	Poor: ponding, excess humus.
31, 32-------------- Faceville	Slight------------	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
33------------------ Leefield	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
34------------------ Lakeland	Slight------------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
35------------------ Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
36----------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
38----------------- Miccosukee	Severe: percs slowly.	Severe: seepage.	Severe: wetness.	Severe: seepage.	Fair: too clayey.
39----------------- Cowarts	Severe: percs slowly.	Moderate: slope.	Slight-----------	Slight-----------	Good.
41----------------- Byars	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
42----------------- Faceville	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
43----------------- Alpin	Slight-----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
44----------------- Troup	Moderate: slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
45----------------- Plummer	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, too sandy.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
46----------------- Cowarts	Severe: percs slowly.	Moderate: slope.	Slight-----------	Slight-----------	Good.
47:					
Nutall-------------	Severe: depth to rock, percs slowly.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Poor: depth to rock, wetness.
Tooles-------------	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Severe: depth to rock, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
52----------------- Mascotte	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness, thin layer.
54:					
Leon---------------	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Chaires------------	Severe: wetness, percs slowly.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
55------------------ Lucy	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
56, 57-------------- Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight-----------	Slight-----------	Fair: small stones.
58:					
Chiefland----------	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, too sandy.	Severe: depth to rock, seepage.	Poor: area reclaim, seepage, too sandy.
Chiefland----------	Severe: flooding, wetness.	Severe: flooding, seepage.	Severe: depth to rock, too sandy, flooding.	Severe: flooding.	Poor: seepage, too sandy,
61:					
Tooles-------------	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Severe: depth to rock, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Tooles-------------	Severe: ponding, percs slowly, poor filter.	Severe: seepage, ponding.	Severe: depth to rock, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
Chaires------------	Severe: ponding, percs slowly, poor filter.	Severe: seepage, ponding.	Severe: ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
62:					
Nutall-------------	Severe: depth to rock, ponding, percs slowly.	Severe: seepage, depth to rock, ponding.	Severe: depth to rock, ponding.	Severe: depth to rock, seepage, ponding.	Poor: depth to rock, ponding.
Tooles-------------	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, depth to rock, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
63----------------- Bayvi	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
2 Ortega	Good	Probable	Improbable: too sandy.	Poor: too sandy.
3 Chipley	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
4 Surrency	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
5 Fuquay	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
6, 7 Dothan	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, thin layer.
8 Chaires	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
9 Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
10 Rains	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
11, 12 Lucy	Good	Improbable: excess fines, thin layer.	Improbable: excess fines.	Fair: too sandy.
13, 14 Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
15 Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
16 Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
17, 18 Troup	Good	Probable	Improbable: too sandy.	Poor: too sandy.
19 Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
20 Albany	Fair: wetness.	Improbable: thin layer.	Improbable: excess fines.	Poor: too sandy.
21 Bonifay	Good	Probable	Improbable: too sandy.	Poor: too sandy.
22 Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
23: Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
24: Fuquay	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
25: Pits.				
26: Sapelo	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: too sandy, wetness.
28: Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
30: Pamlico	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
Dorovan	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
31, 32: Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
33: Leefield	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
34: Lakeland	Good	Probable	Improbable: too sandy.	Poor: too sandy.
35: Rutlege	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	
36: Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
38: Miccosukee	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
39: Cowarts	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
41: Byars	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.
42: Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
43: Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
44: Troup	Good	Probable	Improbable: too sandy.	Poor: too sandy.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
45: Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
46: Cowarts	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
47:				
Nutall	Poor: depth to rock, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
52: Mascotte	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
54:				
Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Chaires	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
55: Lucy	Good	Improbable: excess fines, thin layer.	Improbable: excess fines.	Fair: too sandy, slope.
56, 57: Tifton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
58:				
Chiefland	Poor: area reclaim.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
Chiefland	Poor: area reclaim.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
61:				
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
Chaires	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
62:				
Nutall	Poor: depth to rock, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
62:				
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
63 Bayvi	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess salt, wetness, too sandy.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
2 Ortega	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
3 Chipley	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Droughty.
4 Surrency	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty.	Ponding, too sandy.	Wetness, droughty.
5 Fuquay	Slight	Slight	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
6, 7 Dothan	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Fast intake, slope, droughty.	Favorable	Droughty.
8 Chaires	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
9 Leon	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
10 Rains	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness	Wetness, soil blowing.	Wetness.
11 Lucy	Severe: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Favorable	Droughty.
12 Lucy	Severe: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Favorable	Droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
13, 14 Orangeburg	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
15 Orangeburg	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
16 Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
17 Troup	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
18 Troup	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy	Droughty.
19 Bibb	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, flooding.	Wetness	Wetness.
20 Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
21 Bonifay	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
22 Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
23 Pelham	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Fast intake, wetness.	Wetness, soil blowing.	Wetness.
24 Fuquay	Slight	Slight	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy	Droughty.
25: Pits.							

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
26----------------- Sapelo	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Droughty, wetness.
28----------------- Alpin	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, soil blowing.	Too sandy, soil blowing.	Droughty.
30:							
Pamlico-----------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Subsides, cutbanks cave.	Wetness, rooting depth.	Wetness, too sandy.	Wetness, rooting depth.
Dorovan-----------	Moderate: seepage.	Severe: excess humus, ponding.	Severe: cutbanks cave.	Ponding, flooding, subsides.	Ponding, flooding.	Ponding---------	Wetness.
31, 32------------ Faceville	Moderate: seepage.	Slight----------	Severe: no water.	Deep to water	Slope-----------	Favorable-------	Favorable.
33----------------- Leefield	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Favorable-------	Wetness, droughty, fast intake.	Wetness---------	Droughty.
34----------------- Lakeland	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
35----------------- Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty.	Too sandy, ponding.	Wetness, droughty.
36----------------- Lynchburg	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable-------	Wetness, fast intake.	Wetness---------	Wetness.
38----------------- Miccosukee	Severe: seepage.	Severe: piping.	Severe: slow refill.	Deep to water	Soil blowing	Soil blowing, poor outlets.	Favorable.
39----------------- Cowarts	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Fast intake, percs slowly, slope.	Percs slowly----	Percs slowly.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
41---------------- Byars	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Soil blowing, percs slowly, wetness.	Wetness, percs slowly.	Wetness, percs slowly.
42---------------- Faceville	Severe: slope.	Slight---------	Severe: no water.	Deep to water	Fast intake, slope.	Slope----------	Slope.
43---------------- Alpin	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, soil blowing.	Too sandy, soil blowing.	Droughty.
44---------------- Troup	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy.	Slope, droughty.
45---------------- Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
46---------------- Cowarts	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Fast intake, percs slowly, slope.	Percs slowly---	Percs slowly.
47: Nutall-----------	Moderate: depth to rock.	Severe: thin layer, wetness.	Severe: slow refill, depth to rock, cutbanks cave.	Percs slowly, depth to rock.	Wetness, fast intake.	Depth to rock, wetness, soil blowing.	Wetness, depth to rock.
Tooles-----------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty, percs slowly.
52---------------- Mascotte	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Favorable------	Wetness, droughty, fast intake.	Wetness, soil blowing.	Wetness, droughty.
54: Leon-------------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
54:							
Chaires	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
55 Lucy	Severe: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Slope	Slope, droughty.
56, 57 Tifton	Moderate: seepage, slope.	Slight	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
58:							
Chiefland	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Depth to rock, too sandy, soil blowing.	Droughty, depth to rock.
Chiefland	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Depth to rock, too sandy, soil blowing.	Droughty, depth to rock.
61:							
Tooles	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty, percs slowly.
Tooles	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: slow refill, cutbanks cave.	Ponding, percs slowly, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy, soil blowing.	Wetness, droughty, percs slowly.
Chaires	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: slow refill, cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy, soil blowing.	Wetness, droughty.
62:							
Nutall	Moderate: depth to rock.	Severe: thin layer, ponding.	Severe: slow refill, depth to rock, cutbanks cave.	Ponding, percs slowly, depth to rock.	Ponding, droughty, fast intake.	Depth to rock, ponding, soil blowing.	Wetness, droughty, depth to rock.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
62: Tooles-----------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty, percs slowly.
63---------------- Bayvi	Severe: seepage.	Severe: seepage, wetness, excess salt.	Severe: salty water, cutbanks cave.	Flooding, cutbanks cave, excess salt.	Wetness, flooding, excess salt.	Wetness, too sandy, soil blowing.	Wetness, excess salt.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. Some soils have Unified classifications and USDA textures that are supplementary to those shown. In general, the dominant classifications and textures are shown, and the others are inferred]

Map symbol and soil name	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	
2	0-5	Fine sand	SP, SP-SM	A-3	0	100	100	90-100	3-8	---	NP
Ortega	5-80	Fine sand, sand	SP, SP-SM	A-3	0	100	100	90-100	2-7	---	NP
3 Chipley	0-12	Fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	12-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
4	0-26	Fine sand	SM	A-2	0	100	95-100	50-75	10-26	---	NP
Surrency	26-80	Sandy clay loam	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	80-98	30-44	<35	NP-15
5 Fuquay	0-37	Fine sand	SP-SM, SM	A-1, A-2, A-3	0	95-100	90-100	45-90	5-20	---	NP
	37-43	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	70-90	23-45	<25	NP-13
	43-80	Sandy clay loam	SC, SM-SC, CL-ML	A-2, A-4, A-6, A-7-6	0	95-100	90-100	58-90	28-49	20-45	4-20
6	0-9	Loamy fine sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
Dothan	9-49	Sandy clay loam, sandy loam, fine sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-100	23-49	<40	NP-20
	49-80	Sandy clay loam, sandy clay.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	95-100	92-100	70-100	30-53	25-45	4-23
7	0-6	Loamy fine sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
Dothan	6-64	Sandy clay loam, sandy loam, fine sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-100	23-49	<40	NP-20
	64-80	Sandy clay loam, sandy clay.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	95-100	92-100	70-100	30-53	25-45	4-23
8	0-29	Fine sand	SP, SP-SM	A-3	0	100	100	80-100	2-12	---	NP
Chaires	29-52	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	52-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	85-100	20-35	<40	NP-20
9 Leon	0-21	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	21-53	Sand, fine sand, loamy sand.	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	53-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
10	0-7	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
Rains	7-34	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	34-80	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CH	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-60	4-34

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
11---------------	0-34	Loamy fine sand	SM, SP-SM	A-2	0	98-100	95-100	50-100	10-30	---	NP
Lucy	34-42	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-100	15-50	<30	NP-15
	42-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-100	20-50	20-40	3-20
12---------------	0-26	Loamy fine sand	SM, SP-SM	A-2	0	98-100	95-100	50-100	10-30	---	NP
Lucy	26-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-100	20-50	20-40	3-20
13---------------	0-7	Sandy loam--------	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
Orangeburg	7-34	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
	34-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	0	98-100	95-100	70-97	40-65	24-46	8-21
14---------------	0-9	Sandy loam--------	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
Orangeburg	9-16	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
	16-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	0	98-100	95-100	70-97	40-65	24-46	8-21
15---------------	0-5	Sandy loam--------	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
Orangeburg	5-26	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
	26-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	0	98-100	95-100	70-97	40-65	24-46	8-21
16---------------	0-63	Fine sand---------	SP-SM, SM	A-3, A-2-4	0	100	90-100	65-100	5-20	---	NP
Blanton	63-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	20-50	<45	NP-22
17---------------	0-43	Fine sand---------	SM, SP-SM	A-2	0	95-100	90-100	50-100	10-30	---	NP
Troup	43-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2, A-6	0	95-100	90-100	60-100	24-55	19-40	4-20
18---------------	0-50	Fine sand---------	SM, SP-SM	A-2	0	95-100	90-100	50-100	10-30	---	NP
Troup	50-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2, A-6	0	95-100	90-100	60-100	24-55	19-40	4-20
19---------------	0-10	Loamy sand--------	SM, SP-SM	A-2, A-3	0-5	95-100	90-100	40-90	8-35	---	NP
Bibb	10-80	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
20--------------- Albany	0-55	Sand-------------	SM, SP-SM	A-2	0	100	100	75-95	10-20	---	NP
	55-60	Sandy loam-------	SM	A-2	0	100	100	75-92	22-30	---	NP
	60-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	20-50	<40	NP-17
21--------------- Bonifay	0-48	Fine sand--------	SP-SM	A-3, A-2-4	0	98-100	98-100	60-100	5-12	---	NP
	48-52	Sandy loam, sandy clay loam, fine sandy loam.	SM-SC, SC, SM	A-2-4, A-4, A-2-6, A-6	0	95-100	90-100	63-95	23-50	<30	NP-12
	52-80	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A-7	0	95-100	90-100	60-100	30-60	25-49	5-22
22--------------- Plummer	0-69	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	100	75-90	5-20	---	NP
	69-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10
23--------------- Pelham	0-34	Fine sand--------	SM, SP-SM	A-2	0	100	95-100	75-100	10-25	---	NP
	34-49	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-100	27-50	16-30	2-12
	49-80	Sandy clay loam, sandy loam, sandy clay.	SC, SM, ML, CL	A-2, A-4, A-6, A-7	0	100	95-100	65-100	27-65	20-45	3-20
24--------------- Fuquay	0-37	Fine sand--------	SP-SM, SM	A-1, A-2, A-3	0	95-100	90-100	45-80	5-20	---	NP
	37-80	Sandy clay loam, sandy loam.	SC, SM-SC, CL-ML	A-2, A-4, A-6, A-7-6	0	95-100	90-100	58-90	28-49	20-49	4-12
25: Pits.											
26--------------- Sapelo	0-10	Fine sand--------	SM, SP, SP-SM	A-2, A-3	0	100	100	85-100	4-20	---	NP
	10-19	Fine sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	80-100	8-20	---	NP
	19-54	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	75-100	4-20	---	NP
	54-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	80-100	20-50	<40	NP-20
28--------------- Alpin	0-4	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-47	Fine sand, sand	SP-SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	47-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
30: Pamlico----------	0-27	Muck-------------	PT	---	0	---	---	---	---	---	---
	27-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-20	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
30:											
Dorovan----------	0-65	Muck-------------	PT	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
31--------------- Faceville	0-14	Fine sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-7
	14-80	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
32--------------- Faceville	0-4	Fine sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-7
	4-80	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
33--------------- Leefield	0-32	Fine sand---------	SM, SW-SM, SP-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	32-63	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
	63-80	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-90	20-40	<40	NP-20
34--------------- Lakeland	0-8	Sand-------------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	8-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
35--------------- Rutlege	0-12	Fine sand---------	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	---	NP
	12-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	---	NP
36--------------- Lynchburg	0-17	Loamy fine sand	SM, SP-SM	A-2, A-4	0	92-100	90-100	60-100	12-40	<25	NP-4
	17-80	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	92-100	90-100	70-100	25-67	15-40	4-18
38--------------- Miccosukee	0-9	Fine sandy loam	SM, ML, CL-ML, SM-SC	A-2-4, A-4	0	100	100	75-90	20-55	<20	NP-10
	9-37	Silt loam, clay loam, sandy clay loam.	SC, CL, SM-SC, CL-ML	A-4, A-5, A-6, A-7	0	100	100	80-95	45-85	<45	NP-25
	37-50	Loamy fine sand, sandy loam, fine sandy loam.	SM, ML, CL-ML, SM-SC	A-2-4, A-4	0	100	100	51-80	13-55	<20	NP-7
	50-80	Sandy clay loam, clay loam.	ML, CL, SM-SC, CL-ML	A-4, A-5, A-6, A-7	0	100	100	60-98	40-80	20-45	5-25
39--------------- Cowarts	0-13	Loamy fine sand	SM	A-2	0	90-100	85-100	50-80	13-30	---	NP
	13-36	Sandy clay loam, sandy clay.	SC	A-6, A-7	0	95-100	90-100	60-95	25-50	30-49	11-25
	36-80	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-45	5-20
41--------------- Byars	0-12	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	98-100	98-100	70-95	36-65	<30	NP-7
	12-65	Clay, clay loam, sandy clay.	CL, CH, MH	A-7-5, A-7-6, A-6	0	98-100	98-100	90-100	60-95	39-75	17-42
	65-80	Clay, silty clay loam, silty clay.	CL, ML	A-6, A-7, A-4	0	98-100	98-100	90-100	75-98	30-45	8-20
	73-80	Variable----------	---	---	---	---	---	---	---	---	---

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
42--------------- Faceville	0-10	Loamy fine sand	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
	10-16	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	16-80	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
43--------------- Alpin	0-4	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-65	Fine sand, sand	SP-SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	65-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
44--------------- Troup	0-50	Fine sand--------	SM, SP-SM	A-2	0	95-100	90-100	50-75	10-30	---	NP
	50-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2, A-6	0	95-100	90-100	60-90	24-55	19-40	4-20
45--------------- Plummer	0-68	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	100	75-90	5-20	---	NP
	68-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10
46--------------- Cowarts	0-4	Loamy fine sand	SM	A-2	0	90-100	85-100	50-80	13-30	---	NP
	4-8	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	90-100	60-90	23-45	20-40	NP-15
	8-40	Sandy clay loam, sandy clay.	SM-SC, SM, SC	A-6, A-7	0	95-100	90-100	60-90	25-50	30-54	11-23
	40-80	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-53	5-20
47: Nutall----------	0-17	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	17-30	Sandy clay loam, clay loam.	SC	A-2-6, A-6	0	100	100	85-100	30-45	25-40	11-20
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tooles----------	0-40	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	40-56	Sandy clay loam, clay loam.	SC	A-6	0	100	100	85-100	30-45	25-40	11-20
	56	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
52--------------- Mascotte	0-10	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	10-17	Fine sand, sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	17-30	Fine sand, sand, loamy fine sand.	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	30-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-2, A-4, A-6	0	100	100	85-100	19-45	<38	NP-15

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
54:											
Leon	0-7	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	7-30	Sand, fine sand, loamy sand.	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	30-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
Chaires	0-15	Fine sand	SP, SP-SM	A-3	0	100	100	80-100	2-12	---	NP
	15-45	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	45-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	85-100	20-35	<40	NP-20
55: Lucy	0-33	Loamy fine sand	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	33-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
56, 57: Tifton	0-6	Gravelly loamy fine sand.	SM, SP-SM	A-2	0	70-97	62-94	53-85	11-27	---	NP
	6-10	Sandy loam, sandy clay loam, gravelly sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	10-45	Sandy clay loam, gravelly sandy clay loam.	SC, CL	A-2, A-6, A-4	0	70-98	65-94	60-89	22-53	22-40	8-22
	45-80	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
58:											
Chiefland	0-7	Fine sand	SP-SM, SM	A-2-4, A-3	0-4	96-100	96-100	80-95	5-15	---	NP
	7-25	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	100	100	80-95	5-15	---	NP
	25-32	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0-10	90-100	85-100	80-95	20-35	25-40	NP-15
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chiefland	0-12	Fine sand	SP-SM, SM	A-2-4, A-3	0-4	96-100	96-100	80-95	5-15	---	NP
	12-40	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	100	100	80-95	5-15	---	NP
	40-52	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0-10	90-100	85-100	80-95	20-35	25-40	NP-15
	52	Weathered bedrock	---	---	---	---	---	---	---	---	---
61:											
Tooles	0-39	Fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	39-46	Sandy clay loam, clay loam.	SC	A-6	0	100	100	85-100	30-45	25-40	11-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
61:											
Tooles----------	0-39	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	39-46	Sandy clay loam, clay loam.	SC	A-6	0	100	100	85-100	30-45	25-40	11-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chaires---------	0-28	Fine sand--------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	28-54	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	54-68	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	85-100	20-35	<40	NP-20
	68-80	Sandy clay loam, sandy clay.	SC	A-2-6, A-2-7, A-6, A-7	0	100	100	85-100	25-50	25-50	11-30
62:											
Nutall----------	0-17	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	17-30	Sandy clay loam, sandy clay.	SC	A-2-6, A-6	0	100	100	85-100	30-45	25-40	11-20
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tooles----------	0-32	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	32-46	Sandy clay loam, clay loam.	SC	A-6	0	100	100	85-100	30-45	25-40	11-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
63--------------- Bayvi	0-5	Muck-------------	PT	---	---	---	---	---	---	---	---
	5-31	Mucky loamy sand, loamy sand, sand	SM, SP-SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP
	31-80	Loamy sand, fine sand, sand.	SM, SP-SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
2----------------	0-5	1-3	1.20-1.45	6.0-20	0.05-0.08	3.6-6.5	<2	Low--------	0.10	5	2	1-2
Ortega	5-80	1-3	1.35-1.60	6.0-20	0.03-0.06	3.6-6.5	<2	Low--------	0.10			
3----------------	0-12	1-5	1.35-1.45	6.0-20	0.05-0.10	3.6-6.0	<2	Low--------	0.10	5	2	2-5
Chipley	12-80	1-7	1.45-1.60	6.0-20	0.03-0.08	4.5-6.5	<2	Low--------	0.10			
4----------------	0-26	<10	1.50-1.70	2.0-20	0.05-0.10	3.6-5.0	<2	Low--------	0.10	5	---	1-4
Surrency	26-80	23-35	1.60-1.85	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low--------	0.15			
5----------------	0-37	1-7	1.60-1.70	6.0-20	0.03-0.07	4.5-6.0	<2	Low--------	0.10	5	---	.5-2
Fuquay	37-43	10-35	1.40-1.60	0.6-2.0	0.12-0.15	4.5-6.0	<2	Low--------	0.20			
	43-80	20-35	1.40-1.60	0.06-0.2	0.10-0.13	4.5-6.0	<2	Low--------	0.20			
6----------------	0-9	5-15	1.30-1.60	2.0-6.0	0.06-0.10	4.5-6.0	<2	Very low	0.15	5	---	<.5
Dothan	9-49	18-35	1.40-1.60	0.6-2.0	0.12-0.16	4.5-6.0	<2	Low--------	0.28			
	49-80	18-40	1.45-1.70	0.2-0.6	0.08-0.12	4.5-6.0	<2	Low--------	0.28			
7----------------	0-6	5-15	1.30-1.60	2.0-6.0	0.06-0.10	4.5-6.0	<2	Very low	0.15	5	---	<.5
Dothan	6-64	18-35	1.40-1.60	0.6-2.0	0.12-0.16	4.5-6.0	<2	Low--------	0.28			
	64-80	18-40	1.45-1.70	0.2-0.6	0.08-0.12	4.5-6.0	<2	Low--------	0.28			
8----------------	0-29	<3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	<2	Low--------	0.10	5	2	1-3
Chaires	29-52	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	<2	Low--------	0.20			
	52-80	15-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-7.3	<2	Low--------	0.24			
9----------------	0-21	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-5.5	<2	Low--------	0.10	5	2	.5-4
Leon	21-53	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	<2	Low--------	0.15			
	53-80	1-6	1.40-1.65	0.6-6.0	0.02-0.05	3.6-5.5	<2	Low--------	0.10			
10---------------	0-7	5-20	1.30-1.60	2.0-6.0	0.10-0.14	3.6-6.5	<2	Low--------	0.20	5	3	1-6
Rains	7-34	18-35	1.30-1.50	0.6-2.0	0.11-0.15	3.6-5.5	<2	Low--------	0.24			
	34-80	18-40	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.28			
11---------------	0-34	1-12	1.30-1.70	6.0-20	0.06-0.10	5.1-6.0	<2	Low--------	0.15	5	---	.5-1
Lucy	34-42	10-30	1.40-1.60	2.0-6.0	0.10-0.12	4.5-5.5	<2	Low--------	0.24			
	42-80	15-35	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	<2	Low--------	0.28			
12---------------	0-26	1-12	1.30-1.70	6.0-20	0.06-0.10	5.1-6.0	<2	Low--------	0.15	5	---	.5-1
Lucy	26-80	15-35	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	<2	Low--------	0.28			
13---------------	0-7	7-15	1.30-1.50	2.0-6.0	0.07-0.10	4.5-6.0	<2	Low--------	0.20	5	---	.5-2
Orangeburg	7-34	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
	34-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
14---------------	0-9	7-15	1.30-1.50	2.0-6.0	0.07-0.10	4.5-6.0	<2	Low--------	0.20	5	---	.5-2
Orangeburg	9-16	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
	16-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
15---------------	0-5	7-15	1.30-1.50	2.0-6.0	0.07-0.10	4.5-6.0	<2	Low--------	0.20	5	---	.5-2
Orangeburg	5-26	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
	26-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	<2	Low--------	0.24			
16---------------	0-63	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	<2	Low--------	0.10	5	2	.5-1
Blanton	63-80	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low--------	0.20			
17---------------	0-43	1-10	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	<2	Very low	0.10	5	---	<1
Troup	43-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	<2	Low--------	0.20			

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
18--------------- Troup	0-50 50-80	1-10 15-35	1.30-1.70 1.40-1.60	6.0-20 0.6-2.0	0.05-0.10 0.10-0.13	4.5-6.0 4.5-5.5	<2 <2	Very low Low-------	0.10 0.20	5	---	<1
19--------------- Bibb	0-10 10-80 37-60 37-60	2-12 2-18 2-18 2-12	1.40-1.65 1.30-1.60 1.30-1.60 1.40-1.65	6.0-20.0 0.6-2.0 0.6-2.0 2.0-6.0	0.06-0.10 0.12-0.20 0.12-0.20 0.06-0.10	4.5-5.5 4.5-5.5 4.5-5.5 4.5-5.5	<2 <2 <2 <2	Low------- Low------- Low------- Low-------	0.15 0.37 0.37 0.15	5	---	<1
20--------------- Albany	0-55 55-60 60-80	1-10 1-20 13-35	1.40-1.55 1.50-1.70 1.55-1.65	6.0-20 2.0-6.0 0.6-2.0	0.02-0.04 0.08-0.10 0.10-0.16	3.6-6.5 4.5-6.0 4.5-6.0	<2 <2 <2	Low------- Low------- Low-------	0.10 0.20 0.24	5	1	1-2
21--------------- Bonifay	0-48 48-52 52-80	3-9 15-35 20-45	1.35-1.60 1.60-1.70 1.60-1.70	6.0-20 0.6-2.0 0.2-0.6	0.03-0.08 0.10-0.15 0.10-0.15	4.5-6.5 4.5-6.5 4.5-6.5	<2 <2 <2	Low------- Low------- Low-------	0.10 0.24 0.24	5	2	1-3
22--------------- Plummer	0-69 69-80	1-7 15-30	1.35-1.65 1.50-1.70	2.0-20.0 0.6-2.0	0.03-0.20 0.07-0.15	3.6-5.5 3.6-5.5	<2 <2	Low------- Low-------	0.10 0.15	5	---	1-3
23--------------- Pelham	0-34 34-49 49-80	1-8 15-30 15-40	1.50-1.70 1.30-1.60 1.30-1.60	6.0-20 0.6-2.0 0.6-2.0	0.04-0.07 0.10-0.13 0.10-0.16	3.6-5.5 3.6-5.5 3.6-5.5	<2 <2 <2	Low------- Low------- Low-------	0.10 0.24 0.24	5	---	1-2
24--------------- Fuquay	0-35 35-80	1-7 20-35	1.60-1.70 1.40-1.60	>6.0 0.06-0.2	0.03-0.07 0.10-0.13	4.5-6.0 4.5-6.0	<2 <2	Low------- Low-------	0.10 0.20	5	---	.5-2
25: Pits.												
26--------------- Sapelo	0-10 10-19 19-54 54-80	2-5 3-7 3-6 10-30	1.40-1.65 1.35-1.60 1.50-1.70 1.55-1.75	6.0-20 0.6-2.0 6.0-20 0.6-2.0	0.03-0.07 0.10-0.15 0.03-0.07 0.12-0.17	3.6-5.5 3.6-5.5 3.6-5.5 3.6-5.5	<2 <2 <2 <2	Low------- Low------- Low------- Low-------	0.10 0.15 0.17 0.24	5	---	1-3
28--------------- Alpin	0-4 4-47 47-80	1-12 1-7 5-8	1.35-1.55 1.40-1.55 1.45-1.65	2.0-6.0 6.0-20.0 2.0-6.0	0.05-0.10 0.03-0.09 0.06-0.09	4.5-6.5 4.5-6.5 4.5-6.5	<2 <2 <2	Low------- Low------- Low-------	0.10 0.10 0.10	5	2	0-2
30: Pamlico----------	0-27 27-80	--- 5-10	0.40-0.65 1.60-1.75	0.6-6.0 6.0-20	0.24-0.26 0.03-0.06	3.6-4.4 3.6-5.5	<2 <2	Low------- Low-------	---- 0.10	---	---	20-80
Dorovan----------	0-65 65-80	--- 5-20	0.35-0.55 1.40-1.65	0.6-2.0 6.0-20	0.25-0.50 0.05-0.08	3.6-4.4 4.5-5.5	<2 <2	----------- Low-------	---- ----	---	---	20-80
31--------------- Faceville	0-14 14-80	5-20 35-55	--- ---	6.0-20 0.6-2.0	0.06-0.09 0.12-0.18	4.5-5.5 4.5-6.0	<2 <2	Low------- Low-------	0.28 0.37	5	---	.5-2
32--------------- Faceville	0-4 4-80	5-20 35-55	--- ---	6.0-20 0.6-2.0	0.06-0.09 0.12-0.18	4.5-5.5 4.5-6.0	<2 <2	Low------- Low-------	0.28 0.37	5	---	.5-2
33--------------- Leefield	0-32 32-63 63-80	5-10 15-25 15-30	1.45-1.60 1.50-1.65 1.50-1.70	6.0-20 0.6-2.0 0.2-0.6	0.04-0.07 0.10-0.13 0.08-0.12	4.5-6.0 4.5-5.5 4.5-5.5	<2 <2 <2	Low------- Low------- Low-------	0.10 0.15 0.10	5	---	1-2
34--------------- Lakeland	0-8 8-80	2-8 1-6	1.35-1.65 1.50-1.60	6.0-20 6.0-20	0.05-0.09 0.02-0.08	4.5-6.0 4.5-6.0	<2 <2	Low------- Low-------	0.10 0.10	5	2	<1
35--------------- Rutlege	0-12 12-80	<10 <10	--- 1.40-1.60	6.0-20 6.0-20	0.06-0.10 0.04-0.08	3.6-5.5 3.6-5.5	<2 <2	Low------- Low-------	0.17 0.17	5	---	3-15

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodi-bility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
36----------------	0-17	2-10	1.40-1.70	6.0-20	0.07-0.10	3.6-6.0	<2	Low--------	0.15	5	2	.5-5
Lynchburg	17-80	18-35	1.30-1.50	0.6-2.0	0.12-0.16	3.6-6.0	<2	Low--------	0.20			
38----------------	0-9	10-20	1.30-1.50	2.0-6.0	0.10-0.13	4.5-6.0	<2	Low--------	0.24	5	3	3-5
Miccosukee	9-37	15-40	1.30-1.60	0.2-2.0	0.10-0.20	4.5-6.0	<2	Low--------	0.28			
	37-50	8-20	1.50-1.70	2.0-6.0	0.06-0.12	4.5-6.0	<2	Low--------	0.24			
	50-80	20-45	1.50-1.70	0.2-0.6	0.10-0.16	4.5-6.0	<2	Low--------	0.32			
39----------------	0-13	3-10	1.30-1.70	2.0-6.0	0.06-0.10	4.5-5.5	<2	Low--------	0.15	3	---	<1
Cowarts	13-36	25-40	1.30-1.50	0.2-2.0	0.10-0.16	4.5-5.5	<2	Low--------	0.28			
	36-80	18-35	1.45-1.75	0.06-0.6	0.08-0.12	4.5-5.5	<2	Low--------	0.24			
41----------------	0-12	10-20	1.20-1.50	0.6-2.0	0.11-0.16	3.6-5.5	<2	Low--------	0.20	5	3	2-9
Byars	12-65	35-45	1.30-1.60	0.06-0.2	0.14-0.18	3.6-5.5	<2	Moderate	0.32			
	65-80	35-60	1.30-1.60	0.06-0.2	0.14-0.18	3.6-5.5	<2	Moderate	0.32			
	73-80	---	---	---	---	---	---	-----------	-----			
42----------------	0-10	2-10	---	6.0-20	0.06-0.09	4.5-5.5	<2	Low--------	0.17	5	---	.5-1
Faceville	10-16	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low--------	0.37			
	16-80	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	<2	Low--------	0.37			
43----------------	0-4	1-12	1.35-1.55	2.0-6.0	0.05-0.10	4.5-6.5	<2	Low--------	0.10	5	2	0-2
Alpin	4-65	1-7	1.40-1.55	6.0-20.0	0.03-0.09	4.5-6.5	<2	Low--------	0.10			
	65-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	4.5-6.5	<2	Low--------	0.10			
44----------------	0-50	1-10	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	<2	Very low	0.10	5	---	<1
Troup	50-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	<2	Low--------	0.20			
45----------------	0-68	1-7	1.35-1.65	2.0-20.0	0.03-0.20	3.6-5.5	<2	Low--------	0.10	5	---	1-3
Plummer	68-80	15-30	1.50-1.70	0.6-2.0	0.07-0.15	3.6-5.5	<2	Low--------	0.15			
46----------------	0-4	3-10	1.30-1.70	2.0-6.0	0.06-0.10	4.5-5.5	<2	Low--------	0.15	3	---	<1
Cowarts	4-8	10-30	1.30-1.50	0.6-2.0	0.10-0.14	4.5-5.5	<2	Low--------	0.28			
	8-40	25-40	1.30-1.50	0.2-2.0	0.10-0.16	4.5-5.5	<2	Low--------	0.28			
	40-80	18-35	1.45-1.75	0.06-0.6	0.08-0.12	4.5-5.5	<2	Low--------	0.24			
47:												
Nutall-----------	0-17	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	2	2	1-4
	17-30	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	30	---	---	---	---	---	---	-----------	-----			
Tooles-----------	0-40	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	3	2	1-4
	40-56	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	56	---	---	---	---	---	---	-----------	-----			
52----------------	0-10	1-8	1.20-1.45	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.10	5	2	2-5
Mascotte	10-17	2-12	1.35-1.50	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.15			
	17-30	2-8	1.35-1.50	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.15			
	30-80	14-35	1.45-1.65	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.24			
54:												
Leon-------------	0-7	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-5.5	<2	Low--------	0.10	5	2	.5-4
	7-30	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	<2	Low--------	0.15			
	30-80	1-6	1.40-1.65	0.6-6.0	0.02-0.05	3.6-5.5	<2	Low--------	0.10			
Chaires----------	0-15	<3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	<2	Low--------	0.10	5	2	1-3
	15-45	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	<2	Low--------	0.20			
	45-80	15-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-7.3	<2	Low--------	0.24			
	68-80	20-40	1.60-1.70	0.06-0.2	0.12-0.17	4.5-7.3	<2	Moderate	0.32			
55----------------	0-33	1-12	1.30-1.70	6.0-20	0.06-0.10	5.1-6.0	<2	Low--------	0.15	5	---	.5-1
Lucy	33-80	15-35	1.40-1.60	0.6-2.0	0.12-0.14	4.5-5.5	<2	Low--------	0.28			

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodi-bility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
56, 57----------- Tifton	0-6	3-8	1.30-1.55	6.0-20	0.03-0.08	4.5-5.5	<2	Low-------	0.10	4	---	<1
	6-10	13-22	1.45-1.65	6.0-20	0.08-0.12	4.5-5.5	<2	Low-------	0.24			
	10-45	20-35	1.50-1.70	0.6-2.0	0.12-0.16	4.5-5.5	<2	Low-------	0.24			
	45-80	25-40	1.55-1.80	0.2-0.6	0.10-0.13	4.5-5.5	<2	Low-------	0.17			
58:												
Chiefland-------	0-7	1-5	1.35-1.50	6.0-20	0.02-0.05	5.1-7.3	<2	Low-------	0.10	3	2	.5-2
	7-25	1-3	1.45-1.55	6.0-20	0.02-0.05	5.6-7.3	<2	Low-------	0.10			
	25-32	15-35	1.60-1.70	0.6-2.0	0.07-0.12	5.6-8.4	<2	Low-------	0.20			
	32	---	---	---	---	---	---	----------	----			
Chiefland-------	0-12	1-5	1.35-1.50	6.0-20	0.02-0.05	5.1-7.3	<2	Low-------	0.10	3	2	.5-2
	12-40	1-3	1.45-1.55	6.0-20	0.02-0.05	5.6-7.3	<2	Low-------	0.10			
	40-52	15-35	1.60-1.70	0.6-2.0	0.07-0.12	5.6-8.4	<2	Low-------	0.20			
	52	---	---	---	---	---	---	----------	----			
61:												
Tooles----------	0-32	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	3	2	1-4
	32-46	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	46	---	---	---	---	---	---	----------	----			
Tooles----------	0-39	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	3	2	1-4
	39-46	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	46	---	---	---	---	---	---	----------	----			
Chaires---------	0-28	0-3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	<2	Low-------	0.10	5	1	1-3
	28-54	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	<2	Low-------	0.20			
	54-68	15-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-7.3	<2	Low-------	0.37			
	68-80	20-40	1.60-1.70	0.06-0.2	0.12-0.17	4.5-7.3	<2	Moderate	0.32			
62:												
Nutall----------	0-17	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	3	1	.5-1
	17-30	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.24			
	30	---	---	---	---	---	---	----------	----			
Tooles----------	0-32	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	3	2	1-4
	32-46	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	46	---	---	---	---	---	---	----------	----			
63--------------- Bayvi	0-5	---	0-40-0.65	0.6-2.0	0.24-0.26	5.6-7.3	>4	Low-------	----	5	---	20-60
	5-31	3-9	1.50-1.60	6.0-20	0.01-0.03	6.1-8.4	>4	Low-------	0.10			
	31-80	3-9	1.50-1.60	6.0-20	0.01-0.03	6.1-8.4	4-16	Low-------	0.10			

TABLE 16.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
2----------------- Ortega	A	None---------	---	---	3.5-5.0	Apparent	Jun-Jan	>60	---	---	---	Low------	High.
3----------------- Chipley	C	None---------	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	---	---	Low------	High.
4----------------- Surrency	D	None---------	---	---	+1-0.5	Apparent	Dec-Apr	>60	---	---	---	High-----	High.
5----------------- Fuquay	B	None---------	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	---	---	Low------	High.
6, 7-------------- Dothan	B	None---------	---	---	3.0-5.0	Perched	Jan-Apr	>60	---	---	---	Moderate	Moderate.
8----------------- Chaires	B/D	None---------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High-----	High.
9----------------- Leon	B/D	None---------	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High-----	High.
10---------------- Rains	B/D	None---------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High-----	High.
11, 12------------ Lucy	A	None---------	---	---	>6.0	---	---	>60	---	---	---	Low------	High.
13, 14, 15-------- Orangeburg	B	None---------	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
16---------------- Blanton	A	None---------	---	---	5.0-6.0	Perched	Dec-Mar	>60	---	---	---	High-----	High.
17, 18------------ Troup	A	None---------	---	---	>6.0	---	---	>60	---	---	---	Low------	Moderate.
19---------------- Bibb	D	Frequent----	Brief-----	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	---	---	High-----	Moderate.
20---------------- Albany	C	None---------	---	---	1.0-2.5	Apparent	Dec-Mar	>60	---	---	---	High-----	High.
21---------------- Bonifay	A	None---------	---	---	4.0-5.0	Perched	Jan-Feb	>60	---	---	---	Low------	High.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
22: Plummer	B/D	None	---	---	0-1.5	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
23: Pelham	B/D	Occasional	---	---	0.5-1.5	Apparent	Jan-Apr	>60	---	---	---	High	High.
24: Fuquay	B	None	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	---	---	Low	High.
25: Pits.													
26: Sapelo	D	None	---	---	0.5-1.5	Apparent	Nov-Apr	>60	---	---	---	High	High.
28: Alpin	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
30:													
Pamlico	D	Frequent	---	---	0-1.0	Apparent	Dec-May	>60	---	4-12	10-25	High	High.
Dorovan	D	Frequent	Very long	Jan-Dec	+1-0.5	Apparent	Jan-Dec	>60	---	4-10	10-30	High	High.
31, 32: Faceville	B	None	---	---	>6.0	---	---	>60	---	---	---	Low	Moderate.
33: Leefield	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---	Moderate	High.
34: Lakeland	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	Moderate.
35: Rutlege	B/D	None	---	---	+2-1.0	Apparent	Dec-May	>60	---	---	---	High	High.
36: Lynchburg	C	None	---	---	0.5-1.5	Apparent	Nov-Apr	>60	---	---	---	High	High.
38: Miccosukee	C	None	---	---	3.5-6.0	Apparent	Dec-Mar	>60	---	---	---	Moderate	High.
39: Cowarts	C	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
41: Byars	D	Frequent	Long	Feb-May	0-1.0	Apparent	Jan-Dec	>60	---	---	---	High	High.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
42: Faceville	B	None	---	---	>6.0	---	---	>60	---	---	---	Low	Moderate.
43: Alpin	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
44: Troup	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	Moderate.
45: Plummer	B/D	Frequent	Brief	Dec-Jul	0-1.5	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
46: Cowarts	C	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
47:													
Nutall	D	None to common.	Long	Feb-May	0-1.0	Apparent	Feb-Sep	20-40	Soft	---	---	High	Moderate.
Tooles	D	None	---	---	0-1.0	Apparent	Feb-Sep	40-60	Soft	---	---	High	Moderate.
52: Mascotte	B/D	None	---	---	0-1.0	Apparent	Jun-Sep	>60	---	---	---	High	High.
54:													
Leon	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
Chaires	B/D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High	High.
55: Lucy	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
56, 57: Tifton	B	None	---	---	3.5-6.0	Perched	Jan-Feb	>60	---	---	---	Low	Moderate.
58:													
Chiefland	B	None	---	---	4.0-6.0	---	---	24-60	Soft	---	---	Low	Low.
Chiefland	B	Frequent	Long	Mar-Apr	4.0-6.0	---	---	24-60	Soft	---	---	Low	Low.
61:													
Tooles	D	None	---	---	0-1.0	Apparent	Feb-Sep	40-60	Soft	---	---	High	Moderate.
Tooles	D	None	---	---	+2-1.0	Apparent	Nov-May	40-60	Soft	---	---	High	Moderate.
Chaires	D	None	---	---	+2-1.0	Apparent	Nov-Apr	>60	---	---	---	High	High.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
62:													
Nutall-----------	D	Frequent----	---	---	0-1.0	Apparent	Nov-May	20-40	Soft	---	---	High-----	Moderate.
Tooles-----------	D	Frequent----	Long------	Feb-May	0-1.0	Apparent	Nov-May	40-60	Soft	---	---	High-----	Moderate.
63---------------- Bayvi	D	Frequent----	Very long	Jan-Dec	0-1.0	Apparent	Jan-Dec	>60	---	---	---	High-----	High.

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moisture)	Water content: 1/10 bar	1/3 bar	15 bar
	Cm		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	G/cm	----Pct (wt)		----
Albany fine sand: 1/															
S81FL-065-021-1	0-18	Ap	0.2	5.1	16.3	41.4	30.0	93.0	4.2	2.8	6.1	1.50	18.1	8.6	2.3
S81FL-065-021-2	18-43	E1	0.3	4.6	14.9	43.9	27.6	91.3	7.7	1.0	4.4	1.67	10.5	4.7	1.0
S81FL-065-021-3	43-89	E2	0.4	5.0	14.4	43.6	28.6	92.0	7.0	1.0	6.0	1.62	7.8	3.8	0.7
S81FL-065-021-4	89-114	E3	0.4	5.6	14.7	44.5	27.8	93.0	6.0	1.0	6.2	1.69	8.6	3.3	0.7
S81FL-065-021-5	114-162	Bt1	0.6	5.4	14.6	35.8	26.6	83.0	8.9	8.1	0.2	1.75	15.9	11.9	3.8
S81FL-065-021-6	162-201	Bt2	0.2	4.8	13.8	29.6	23.4	71.8	4.3	23.9	0.0	1.75	17.7	15.6	6.5
S81FL-065-021-7	201-213	Btg	0.3	4.9	14.0	36.6	21.0	76.8	3.1	20.1	0.0	1.75	17.6	15.8	7.7
Alpin fine sand: 2/															
S81FL-065-009-1	0-10	A	0.0	2.7	19.2	56.9	15.3	94.1	3.5	2.4	21.4	1.37	9.6	5.8	2.0
S81FL-065-009-2	10-51	E1	0.4	3.2	19.8	54.2	16.0	93.6	3.8	2.6	24.0	1.45	6.7	3.7	1.5
S81FL-065-009-3	51-102	E2	0.4	4.2	22.2	51.4	15.8	94.0	3.5	2.5	16.2	1.52	5.8	3.1	1.7
S81FL-065-009-4	102-119	E3	0.3	3.1	21.0	58.7	12.2	95.3	2.6	2.1	26.0	1.48	4.8	2.4	1.0
S81FL-065-009-5	119-203	E/B	0.4	2.4	15.4	58.0	18.0	94.2	2.6	3.2	19.7	1.53	7.0	4.6	1.8
Blanton fine sand: 3/															
S79FL-065-002-1	0-23	Ap	0.1	2.3	15.1	56.3	18.3	92.1	4.5	3.4	51.9	1.22	11.5	7.3	3.3
S79FL-065-002-2	23-36	A	0.1	2.2	14.5	55.5	19.3	91.6	5.4	3.0	16.4	1.54	7.3	4.2	1.9
S79FL-065-002-3	36-53	E1	0.1	2.6	16.7	53.6	19.0	92.0	5.0	3.0	22.7	1.45	7.7	4.5	2.0
S79FL-065-002-4	53-68	E2	0.1	2.2	14.4	58.8	17.2	92.7	4.3	3.0	21.7	1.49	6.4	3.6	1.6
S79FL-065-002-5	68-102	E3	0.2	2.9	16.9	58.1	15.1	93.2	3.9	2.9	23.0	1.49	6.6	4.0	1.5
S79FL-065-002-6	102-137	E4	0.2	3.4	19.3	58.5	13.2	94.6	3.5	1.9	19.4	1.54	5.6	3.1	1.2
S79FL-065-002-7	137-168	E5	0.2	2.7	14.8	60.7	18.0	96.4	2.5	1.1	15.5	1.52	5.9	2.9	0.7
S79FL-065-002-8	168-188	Bt1	0.2	2.4	13.6	53.5	15.8	85.5	2.8	11.7	2.2	1.71	16.0	11.1	4.7
S79FL-065-002-9	188-203	Bt2	0.1	2.3	12.3	50.0	15.8	80.5	3.7	15.8	1.0	1.68	16.6	11.9	6.0
Bonifay fine sand: 2/															
S79FL-065-007-1	0-20	Ap	0.1	1.9	13.3	60.1	16.9	92.3	5.0	2.7	8.5	1.53	9.8	5.9	2.5
S79FL-065-007-2	20-46	E1	0.2	2.3	14.6	57.8	14.8	89.7	6.0	4.3	10.5	1.56	15.9	12.8	2.3
S79FL-065-007-3	46-76	E2	0.1	2.2	15.0	57.8	15.1	90.2	6.0	3.8	15.5	1.51	7.2	4.5	2.1
S79FL-065-007-4	76-122	E3	0.2	2.1	13.7	58.6	16.3	90.9	5.3	3.8	9.6	1.55	6.7	4.0	1.7
S79FL-065-007-5	122-132	Bt	0.2	2.0	12.0	51.7	14.3	80.2	5.7	14.1	3.5	1.61	14.5	10.5	5.2
S79FL-065-007-6	132-150	Btv	0.2	1.7	11.0	48.4	13.2	74.5	3.8	21.7	1.3	1.66	17.1	14.0	9.1
S79FL-065-007-7	150-203	B't	0.6	1.8	7.6	26.8	8.2	45.0	12.0	43.0	1.7	1.55	21.3	19.2	15.6
Chaires fine sand: 2/															
S81FL-065-027-1	0-20	A	0.1	2.6	12.0	67.1	13.9	95.7	3.3	1.0	10.5	1.39	14.0	7.6	1.4
S81FL-065-027-2	20-74	E	0.1	2.4	11.7	64.4	16.0	94.6	4.5	0.9	10.8	1.59	7.5	3.4	0.3
S81FL-065-027-3	74-86	Bh1	0.0	2.1	12.3	67.2	13.0	94.6	3.6	1.8	1.1	1.54	20.4	14.2	1.8
S81FL-065-027-4	86-122	Bh2	0.1	2.1	10.1	63.9	15.8	92.0	4.4	3.6	9.3	1.63	16.2	12.1	2.1
S81FL-065-027-5	122-132	Bh3	0.0	2.0	9.8	56.2	16.0	84.0	5.1	10.9	1.4	1.62	17.9	12.5	1.8
S81FL-065-027-6	132-140	Btg1	0.0	1.8	9.8	52.8	14.0	78.4	3.6	18.0	0.0	1.75	15.6	13.2	3.8
S81FL-065-027-7	140-203	Btg2	0.1	1.2	10.1	55.3	11.5	78.2	2.7	19.1	0.2	1.77	16.3	14.3	5.4

See footnotes at end of table.

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moisture)	Water content: 1/10 bar	1/3 bar	15 bar
	Cm		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	G/cm	Pct (wt)	Pct (wt)	Pct (wt)
Chiefland fine sand: 2/															
S82FL-065-032-1	0-18	Ap	0.0	0.3	3.2	83.1	9.5	96.1	2.1	1.8	13.1	1.46	8.0	4.6	1.4
S82FL-065-032-2	18-64	E	0.0	0.5	3.8	84.7	8.5	97.5	2.1	0.4	20.7	1.53	5.5	3.2	0.9
S82FL-065-032-3	64-81	Bt	0.0	0.4	3.2	65.6	9.0	78.2	5.2	16.6	0.9	1.50	19.0	15.8	7.3
S82FL-065-032-4	81-124	Cr	0.2	0.6	1.6	20.4	5.2	28.0	66.9	5.1	---	---	---	---	---
Cowarts loamy sand: 4/															
S79FL-065-006-1	0-18	Ap	0.3	4.1	29.4	39.0	10.1	82.9	5.4	11.7	17.7	1.46	14.9	11.6	6.7
S79FL-065-006-2	18-28	E	0.3	2.7	23.1	38.6	11.4	76.1	6.0	17.9	13.1	1.46	17.5	15.1	12.1
S79FL-065-006-3	28-43	Bt1	0.2	2.3	18.8	31.4	9.2	61.9	6.9	31.2	3.4	1.60	14.6	11.9	8.8
S79FL-065-006-4	43-76	Bt2	0.2	2.4	19.4	24.6	5.4	52.0	7.0	41.0	0.9	1.47	23.9	21.1	17.0
S79FL-065-006-5	76-140	C1	0.4	4.8	30.6	28.0	2.6	66.4	2.9	30.7	0.2	1.65	18.4	17.1	15.0
S79FL-065-006-6	140-203	C2	0.6	5.8	32.0	27.8	2.2	68.4	3.8	27.8	0.1	1.73	15.6	13.6	11.0
Dothan loamy fine sand: 2/															
S79FL-065-008-1	0-23	Ap	0.3	2.8	14.4	54.9	14.0	86.4	6.5	7.1	7.4	1.53	12.2	8.5	4.9
S79FL-065-008-2	23-43	Bt1	0.2	1.7	11.7	48.6	13.0	75.2	7.8	17.0	8.7	1.55	12.5	9.4	6.4
S79FL-065-008-3	43-84	Bt2	0.2	1.6	9.8	41.4	11.4	64.4	7.3	28.3	6.7	1.41	17.8	14.6	10.4
S79FL-065-008-4	84-124	Bt2	0.2	1.2	9.4	38.2	10.4	59.4	6.0	34.6	2.4	1.48	21.5	19.1	14.7
S79FL-065-008-5	124-157	Btv1	0.2	1.8	10.6	39.6	11.0	63.2	5.6	31.2	0.4	1.61	20.9	18.9	13.5
S79FL-065-008-6	157-203	Btv2	0.6	2.2	9.8	34.4	9.8	56.8	8.3	34.9	0.2	1.55	21.8	19.4	15.0
Fuquay loamy sand: 5/															
S79FL-065-004-1	0-20	Ap	0.7	8.3	23.3	43.0	10.6	85.9	6.7	7.4	7.9	1.57	10.7	7.4	3.7
S79FL-065-004-2	20-66	E	0.7	8.6	22.3	42.2	10.5	84.3	7.2	8.5	7.6	1.65	15.3	12.2	3.6
S79FL-065-004-3	66-86	EB	0.8	7.7	18.7	38.4	9.9	75.5	6.1	18.4	4.3	1.56	15.6	10.8	5.9
S79FL-065-004-4	86-104	Btv1	0.9	8.3	19.2	37.4	9.7	75.5	5.9	18.6	2.2	1.57	18.8	15.0	9.4
S79FL-065-004-5	104-130	Btv2	0.6	6.2	16.2	28.8	7.0	58.8	5.4	35.8	0.6	1.59	21.1	18.9	13.9
S79FL-065-004-6	130-203	Bt	1.0	9.4	17.6	25.6	4.2	57.8	6.2	36.0	1.2	1.52	20.6	18.8	14.9
Lakeland sand: 2/															
S81FL-065-017-1	0-20	Ap	0.0	3.5	34.6	49.7	7.7	95.5	1.2	3.3	25.0	1.36	12.1	7.7	2.3
S81FL-065-017-2	20-41	C1	0.2	3.8	37.1	45.5	5.8	92.4	5.1	2.5	38.1	1.46	7.7	5.1	2.1
S81FL-065-017-3	41-56	C2	0.2	3.3	37.0	47.2	5.7	93.4	4.3	2.3	44.7	1.47	6.9	4.6	2.0
S81FL-065-017-4	56-102	C3	0.3	3.1	34.0	49.6	6.4	93.4	3.5	3.1	38.1	1.48	5.7	3.8	1.7
S81FL-065-017-5	102-203	C4	0.2	2.7	32.6	51.6	6.7	93.8	2.6	3.6	24.0	1.57	5.5	3.5	1.6

See footnotes at end of table.

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moisture)	Water content: 1/10 bar	1/3 bar	15 bar
	Cm		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	G/cm	----Pct(wt)----		
Leon fine sand: 2/															
S81FL-065-024-1	0-13	A	0.0	0.2	1.9	69.8	21.8	93.7	5.4	0.9	2.7	1.30	30.8	21.2	3.8
S81FL-065-024-2	13-28	E1	0.0	0.2	1.6	78.5	15.7	96.0	0.9	3.1	3.7	1.56	10.8	4.6	0.7
S81FL-065-024-3	28-53	E2	0.0	0.2	1.6	79.0	16.3	97.1	2.3	0.6	7.4	1.54	7.8	3.2	0.5
S81FL-065-024-4	53-64	Bh1	0.0	0.1	1.7	77.6	14.3	93.7	5.3	1.0	3.0	1.45	24.7	16.4	2.2
S81FL-065-024-5	64-135	Bh2	0.0	0.1	1.4	79.4	14.5	95.4	3.9	0.7	2.9	1.63	13.5	7.5	1.3
S81FL-065-024-6	135-145	E'	0.0	0.1	1.4	72.0	17.3	90.8	3.2	6.0	1.4	1.58	19.4	12.7	2.7
S81FL-065-024-7	145-203	Bh'	0.0	0.1	0.6	75.3	18.4	94.4	1.5	4.1	2.4	1.57	16.4	8.7	2.2
Lucy loamy fine sand: 2/															
S79FL-065-001-1	0-20	Ap	0.1	2.2	14.6	51.8	19.0	87.7	6.0	6.3	8.1	1.53	11.8	8.0	3.4
S79FL-065-001-2	20-33	A	0.1	2.2	13.7	52.8	16.6	85.4	7.9	6.7	11.2	1.58	9.2	6.0	3.0
S79FL-065-001-3	33-46	E1	0.1	2.2	13.6	53.9	16.3	86.1	6.8	7.1	14.4	1.56	9.1	6.1	2.7
S79FL-065-001-4	46-68	E2	0.2	2.5	14.9	54.2	15.4	87.2	6.6	6.2	19.0	1.52	7.2	4.4	2.5
S79FL-065-001-5	68-86	EB	0.2	2.2	12.9	52.9	16.1	84.3	6.1	9.6	16.7	1.57	7.9	5.1	3.0
S79FL-065-001-6	86-107	Bt1	0.1	2.0	10.9	46.7	15.4	75.1	5.0	19.9	3.8	1.58	13.6	10.4	7.0
S79FL-065-001-7	107-137	Bt2	0.2	2.2	12.0	36.8	18.6	69.8	5.4	24.8	0.4	1.67	16.3	13.6	9.1
S79FL-065-001-8	137-203	Bt3	0.2	2.0	11.0	40.4	15.8	69.4	4.7	25.9	0.2	1.68	16.9	14.5	10.3
Lynchburg loamy fine sand: 6/															
S81FL-065-028-1	0-23	Ap	0.0	1.7	15.2	41.3	17.0	75.1	23.0	1.9	2.3	1.39	22.2	15.8	4.6
S81FL-065-028-2	23-56	Bt	0.0	2.0	16.2	44.8	16.6	79.6	10.2	10.2	3.9	1.61	10.2	6.6	2.6
S81FL-065-028-3	56-104	Btg1	0.0	2.2	11.2	43.9	18.4	75.7	5.1	19.2	1.1	1.58	17.1	13.7	8.5
S81FL-065-028-4	104-152	Btg1	0.0	0.8	8.8	48.0	18.6	76.2	5.5	18.3	1.5	1.63	15.9	11.7	6.4
S81FL-065-028-5	152-203	Btg2	0.2	1.8	14.0	35.8	13.2	65.0	6.7	28.3	0.1	1.67	17.2	15.2	9.6
Mascotte sand: 7/															
S81FL-065-029-1	0-20	Ap	0.2	9.7	28.7	42.1	11.2	91.9	6.6	1.5	5.3	1.49	13.4	7.7	1.4
S81FL-065-029-2	20-25	Bh1	0.4	12.7	29.5	39.0	10.8	92.4	3.3	4.3	27.9	1.47	13.6	9.5	1.9
S81FL-065-029-3	25-41	Bh2	0.8	18.2	31.4	30.8	7.8	89.0	6.3	4.7	4.5	1.48	16.4	12.4	3.4
S81FL-065-029-4	41-66	E	0.1	1.6	15.1	54.5	17.5	88.8	8.2	3.0	4.5	1.62	11.4	7.9	1.8
S81FL-065-029-5	66-135	Btg1	0.2	7.4	20.6	28.6	9.0	65.8	0.7	33.5	0.4	1.58	19.2	17.2	9.6
S81FL-065-029-6	135-203	Btg2	0.4	7.4	19.0	27.6	9.0	63.4	5.6	31.0	0.1	1.81	14.1	12.2	6.9
Misccosukee fine sandy loam: 2/															
S82FL-065-036-1	0-23	Ap	0.0	0.7	4.4	37.9	22.1	65.1	15.4	19.5	---	---	---	---	---
S82FL-065-036-2	23-38	A1	0.0	0.4	2.0	10.1	19.7	32.2	33.4	34.4	---	---	---	---	---
S82FL-065-036-3	38-71	A2	0.0	0.6	3.9	25.8	19.4	49.7	22.3	28.0	---	---	---	---	---
S82FL-065-036-4	71-94	A3	0.0	1.4	6.9	28.2	15.3	51.8	22.9	25.3	---	---	---	---	---
S82FL-065-036-5	94-109	Ab	0.0	1.2	8.5	43.2	19.3	72.2	12.6	15.2	---	---	---	---	---
S82FL-065-036-6	109-127	Btb1	0.0	0.8	7.0	38.4	19.0	65.2	17.0	17.8	---	---	---	---	---
S82FL-065-036-7	127-165	Btb2	0.0	0.8	5.6	29.2	15.4	51.0	13.3	35.7	---	---	---	---	---
S82FL-065-036-8	165-203	Btb3	0.0	2.2	6.4	25.0	13.2	46.8	16.0	37.2	---	---	---	---	---

See footnotes at end of table.

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.1 mm)	Sand: Coarse (1-0.5 mm)	Sand: Medium (0.5-0.25 mm)	Sand: Fine (0.25-0.1 mm)	Sand: Very fine (0.1-0.05 mm)	Sand: Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moisture)	Water content: 1/10 bar	Water content: 1/3 bar	Water content: 15 bar
	Cm		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	G/cm	Pct (wt)	Pct (wt)	Pct (wt)
Nutall fine sand: 2/															
S82FL-065-037-1	0-10	A	0.0	0.2	4.7	73.0	12.8	90.7	5.9	3.4	---	---	---	---	---
S82FL-065-037-2	10-23	A/E	0.0	0.4	4.9	77.2	12.6	95.1	3.5	1.4	---	---	---	---	---
S82FL-065-037-3	23-33	E1	0.0	0.5	5.5	79.2	11.9	97.1	1.6	1.3	---	---	---	---	---
S82FL-065-037-4	33-43	E2	0.0	0.6	4.9	77.9	12.4	95.8	2.8	1.4	---	---	---	---	---
S82FL-065-037-5	46-76	Btg	0.0	0.2	3.6	55.8	11.0	70.6	5.9	23.5	---	---	---	---	---
Orangeburg sandy loam: 2/															
S81FL-065-013-1	0-18	Ap	2.6	21.4	26.2	23.2	6.6	80.0	5.0	15.0	9.4	1.20	20.5	16.8	7.2
S81FL-065-013-2	18-86	Bt1	2.8	14.8	19.2	20.4	6.0	63.2	8.2	28.6	31.2	1.47	17.1	14.2	9.3
S81FL-065-013-3	86-152	Bt2	2.2	13.6	18.0	18.4	5.0	57.2	4.2	38.6	1.7	1.46	20.1	18.3	12.9
S81FL-065-013-4	152-203	Bt3	3.0	16.4	18.2	18.2	4.8	60.6	3.8	35.6	1.2	1.54	19.6	17.5	12.4
Pelham fine sand: 2/															
S82FL-065-033-1	0-20	Ap	0.2	3.9	13.1	56.5	19.3	93.0	4.4	2.6	---	---	---	---	---
S82FL-065-033-2	20-46	E1	0.4	4.1	12.0	54.1	20.4	91.0	6.0	3.0	---	---	---	---	---
S82FL-065-033-3	46-61	E2	0.3	3.7	12.0	55.8	19.8	91.6	4.9	3.5	---	---	---	---	---
S82FL-065-033-4	61-86	E3	0.4	4.7	11.8	54.5	19.0	90.4	4.7	4.9	---	---	---	---	---
S82FL-065-033-5	86-124	Btg1	0.6	4.1	10.3	47.0	16.5	78.5	4.5	17.0	---	---	---	---	---
S82FL-065-033-6	124-203	Btg2	0.6	3.8	9.6	39.0	16.2	69.2	3.1	27.7	---	---	---	---	---
Plummer fine sandy loam: 8/															
S82FL-065-034-1	0-15	A	0.0	0.8	6.6	50.7	19.5	77.6	13.3	9.2	---	---	---	---	---
S82FL-065-034-2	15-48	Eg1	0.0	0.9	8.2	57.4	23.0	89.5	7.7	2.8	---	---	---	---	---
S82FL-065-034-3	48-71	Eg2	0.0	1.2	7.8	58.1	23.3	90.4	6.8	2.8	---	---	---	---	---
S82FL-065-034-4	71-155	Eg3	0.0	1.2	8.4	60.3	23.2	93.1	6.2	0.7	---	---	---	---	---
S82FL-065-034-5	155-175	Btg1	0.0	0.8	7.0	49.0	23.0	79.8	8.3	11.9	---	---	---	---	---
S82FL-065-034-6	175-203	Btg2	0.0	0.8	7.2	49.6	23.2	80.8	6.0	13.2	---	---	---	---	---
Rains fine sandy loam: 2/															
S82FL-065-035-1	0-18	Ap	0.1	2.6	17.3	43.9	16.1	80.0	8.1	11.9	---	---	---	---	---
S82FL-065-035-2	18-58	Btg1	0.0	2.8	15.6	34.6	13.2	66.2	7.1	26.7	---	---	---	---	---
S82FL-065-035-3	58-86	Btg2	0.0	2.4	15.8	36.4	12.6	67.2	5.4	27.4	---	---	---	---	---
S82FL-065-035-4	86-117	Btg3	0.0	2.0	11.0	27.8	10.6	51.4	3.8	44.8	---	---	---	---	---
S82FL-065-035-5	117-165	Btg4	0.0	1.0	6.8	22.2	9.0	39.0	6.1	54.9	---	---	---	---	---
S82FL-065-035-6	165-203	Btg4	0.0	0.4	2.2	14.2	11.2	28.0	8.6	63.4	---	---	---	---	---

See footnotes at end of table.

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moisture)	Water content: 1/10 bar	1/3 bar	15 bar
	Cm		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	G/cm	----Pct (wt)----		
Sapelo sand: 9/															
S81FL-065-026-1	0-23	A	0.2	4.5	22.2	45.1	14.6	86.6	11.9	1.5	1.8	1.22	32.2	23.3	3.7
S81FL-065-026-2	23-53	E	0.1	7.9	32.8	44.2	10.2	95.2	3.7	1.1	8.0	1.67	5.2	2.3	0.4
S81FL-065-026-3	53-96	Bh	0.2	4.5	20.4	41.5	14.4	81.0	13.3	5.7	0.9	1.55	21.0	16.2	3.3
S81FL-065-026-4	96-109	Bt	0.2	4.9	18.9	36.8	12.3	73.1	10.0	16.9	1.8	1.52	22.1	14.3	5.0
S81FL-065-026-5	109-129	Btg1	0.4	6.0	19.2	33.7	11.0	70.3	8.3	21.4	0.6	1.69	17.6	14.3	6.4
S81FL-065-026-6	129-155	Btg2	0.2	6.4	20.4	33.2	11.4	71.6	7.7	20.7	0.1	1.75	13.2	11.4	6.5
S81FL-065-026-7	155-170	Btg3	0.2	4.6	20.2	38.8	12.8	76.6	7.2	16.2	0.1	1.85	13.5	11.7	5.8
S81FL-065-026-8	170-203	Btg4	0.2	5.4	20.8	36.6	10.0	73.0	5.8	21.2	0.0	1.85	14.0	12.2	7.0
Surrency fine sand: 2/															
S81FL-065-019-1	0-28	Ap	0.2	1.9	11.5	54.4	22.9	90.9	5.9	3.2	3.5	1.48	15.0	9.4	1.6
S81FL-065-019-2	28-38	A	0.2	2.0	13.0	53.0	22.8	91.0	7.1	1.9	3.8	1.67	9.0	4.3	0.5
S81FL-065-019-3	38-66	Eg	0.2	1.8	12.8	53.4	23.6	91.8	5.7	2.5	5.0	1.70	7.7	3.2	0.3
S81FL-065-019-4	66-99	Btg1	0.2	1.8	12.0	45.0	17.2	76.2	5.4	18.4	0.1	1.81	14.7	12.2	5.2
S81FL-065-019-5	99-150	Btg2	0.2	1.2	10.0	42.4	15.8	69.6	1.3	29.1	0.5	1.72	15.3	12.5	5.5
S81FL-065-019-6	150-203	Btg3	0.2	1.2	9.2	38.8	14.0	63.4	3.8	32.8	0.0	1.66	22.1	20.3	12.4
Tifton loamy fine sand: 10/															
S82FL-065-030-1	0-15	Ap	0.2	3.1	15.9	48.2	14.2	81.6	8.9	9.5	1.7	1.56	14.3	8.8	3.3
S82FL-065-030-2	15-25	Btc1	0.2	2.8	16.4	46.4	13.4	79.2	9.7	11.1	0.9	1.68	12.2	9.0	4.5
S82FL-065-030-3	25-64	Btc2	0.2	2.2	12.2	33.8	11.8	60.2	6.4	33.4	7.1	1.54	15.4	12.4	7.1
S82FL-065-030-4	64-99	Btc2	0.2	1.4	9.4	26.8	9.4	47.2	6.4	46.4	4.1	1.46	22.1	19.8	13.7
S82FL-065-030-5	99-132	Btvc	0.2	1.6	9.2	26.0	9.2	46.2	7.3	46.5	1.1	1.46	24.5	22.1	15.8
S82FL-065-030-6	132-165	Btv1	0.4	1.6	9.0	26.0	8.0	45.0	9.6	45.4	16.2	1.40	24.3	22.3	16.8
S82FL-065-030-7	165-203	Btv2	0.4	1.4	6.8	28.2	8.0	44.8	11.0	44.2	0.5	1.44	27.1	25.0	17.7
Tooles fine sand: 2/															
S82FL-065-038-1	0-13	A	0.0	0.3	5.1	74.7	12.1	92.2	4.7	3.1	---	---	---	---	---
S82FL-065-038-2	13-23	A/E	0.0	0.5	5.0	77.4	12.7	95.6	2.9	1.5	---	---	---	---	---
S82FL-065-038-3	23-43	E1	0.0	0.5	4.7	78.7	13.1	97.0	2.2	0.8	---	---	---	---	---
S82FL-065-038-4	43-81	E2	0.0	0.6	5.0	76.3	12.5	94.4	4.0	1.6	---	---	---	---	---
S82FL-065-038-5	81-117	Btg	0.0	0.3	3.8	54.4	9.5	68.0	5.9	26.1	---	---	---	---	---
Troup fine sand: 2/															
S79FL-065-003-1	0-20	Ap	0.1	1.6	14.2	50.1	22.5	88.5	6.3	5.2	19.2	1.38	13.1	8.7	3.4
S79FL-065-003-2	20-53	E1	0.1	1.7	13.6	54.3	19.0	88.7	5.7	5.6	11.4	1.52	8.4	5.3	2.5
S79FL-065-003-3	53-109	E2	0.1	1.7	12.5	53.2	21.0	88.5	5.9	5.6	13.3	1.57	7.6	4.4	2.1
S79FL-065-003-4	109-124	Bt1	0.0	1.4	10.0	44.0	21.6	77.0	5.7	17.3	3.1	1.62	13.0	9.5	5.8
S79FL-065-003-5	124-142	Bt2	0.2	1.2	9.6	40.8	19.6	71.4	5.3	23.3	0.9	1.65	16.3	13.0	8.0
S79FL-065-003-6	142-203	Bt3	0.0	1.2	9.6	38.6	18.0	67.4	3.8	28.8	0.2	1.64	17.3	15.1	10.5

TABLE 17.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

1/ Albany sand: 1 mile east of Thomas City and 0.25 mile north of the unpaved road at 400 Club, SE1/4NW1/4 sec. 32, T. 1 S. R. 4 E.

2/ Typical pedon for the series. See the section "Soil Series and Their Morphology" for location of pedon.

3/ Blanton fine sand: about 0.5 mile south of U.S. Highway 90 and 100 feet east of Old Tung Grove Road, NW1/4NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

4/ Cowarts loamy fine sand: 2.25 miles south of Georgia State line and 0.25 mile east of County Road 149, NE1/4SW1/4SE1/4 sec. 28, T. 3 N., R. 5 E.

5/ Fuquay fine sand: 1.8 miles west of County Road 59 and 50 feet north of the unpaved road that crosses into Leon County, SE1/4SW1/4SE1/4 sec. 29, T. 1 N., R. 3 E.

6/ Lynchburg loamy fine sand: 200 yards north of County Road 149A, NE1/4SW1/4NE1/4 sec. 8, T. 2 N., R. 5 E.

7/ Mascotte sand: SE1/4SW1/4NE1/4 sec. 25, T. 1 S., R. 4 E.

8/ Plummer fine sandy loam: Mays Pond Plantation, NE1/4SW1/4 sec. 16, T. 2 N., R. 4 E.

9/ Sapelo sand: 0.8 mile south of U.S. Highway 19 and 0.5 mile west of County Road 257, SW1/4NE1/4NE1/4 sec. 28, T. 1 S., R. 5 E.

10/ Tifton loamy fine sand: Near Lake Fountaine, NW1/4 sec. 15, T. 3 N.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	$CaCl_2$ 0.1m (1:2)	KCl in (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate dithionite extractable: Fe	Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Albany fine sand: 1/																				
S81FL-065-021-1	0-18	Ap	4.00	0.74	0.01	0.05	4.80	3.87	8.67	55	1.18	0.03	6.2	5.4	5.3	---	---	---	---	---
S81FL-065-021-2	18-43	E1	0.40	0.18	0.01	0.02	0.61	3.19	3.80	16	0.38	0.02	6.2	5.1	4.9	---	---	---	---	---
S81FL-065-021-3	43-89	E2	0.13	0.05	0.01	0.02	0.21	1.40	1.61	13	0.14	0.01	6.1	5.2	5.0	---	---	---	---	---
S81FL-065-021-4	89-114	E3	0.12	0.04	0.01	0.02	0.19	1.35	1.54	12	0.07	0.01	6.4	5.1	5.0	---	---	---	---	---
S81FL-065-021-5	114-162	Bt1	0.60	0.37	0.02	0.09	1.08	4.06	5.14	21	0.07	0.02	5.4	4.3	4.2	---	---	---	---	---
S81FL-065-021-6	162-201	Bt2	2.30	0.58	0.04	0.07	2.99	7.78	10.77	28	0.02	0.06	4.8	4.1	4.0	---	---	---	0.32	0.08
S81FL-065-021-7	201-213	Btg	1.55	0.41	0.03	0.05	2.04	5.53	7.57	27	0.04	0.01	5.2	4.2	4.0	---	---	---	0.16	0.06
Alpin fine sand: 2/																				
S81FL-065-009-1	0-10	A	0.40	0.08	0.03	0.01	0.52	5.58	6.10	9	1.25	0.02	5.2	4.3	3.9	---	---	---	---	---
S81FL-065-009-2	10-51	E1	0.03	0.02	0.02	0.00	0.07	3.08	3.15	2	0.39	0.01	5.4	4.6	4.4	---	---	---	---	---
S81FL-065-009-3	51-102	E2	0.04	0.03	0.12	0.00	0.19	1.85	2.04	9	0.10	0.03	6.3	4.6	4.5	---	---	---	---	---
S81FL-065-009-4	102-119	E3	0.04	0.03	0.01	0.00	0.08	1.32	1.40	6	0.06	0.01	5.7	4.5	4.5	---	---	---	---	---
S81FL-065-009-5	119-203	E/B	0.04	0.04	0.01	0.00	0.09	1.43	1.52	6	0.05	0.02	5.3	4.5	4.4	---	---	---	---	---
Blanton fine sand: 3/																				
S79FL-065-002-1	0-23	Ap	1.32	0.22	0.03	0.12	1.69	5.24	6.93	24	1.03	0.02	5.7	5.0	4.6	---	---	---	---	---
S79FL-065-002-2	23-36	A	0.40	0.03	0.03	0.04	0.50	3.05	3.55	24	0.45	0.01	5.6	4.8	4.5	---	---	---	---	---
S79FL-065-002-3	36-53	E1	0.35	0.02	0.03	0.03	0.43	2.06	2.49	17	0.26	0.02	5.5	4.8	4.5	---	---	---	---	---
S79FL-065-002-4	53-68	E2	0.18	0.02	0.02	0.03	0.25	1.06	1.31	19	0.12	0.02	5.4	4.6	4.5	---	---	---	---	---
S79FL-065-002-5	68-102	E3	0.09	0.02	0.01	0.02	0.14	0.26	0.40	35	0.06	0.01	5.3	4.5	4.4	---	---	---	---	---
S79FL-065-002-6	102-137	E4	0.07	0.02	0.01	0.01	0.11	0.26	0.37	30	0.04	0.02	5.1	4.5	4.4	---	---	---	---	---
S79FL-065-002-7	137-168	E5	0.04	0.01	0.01	0.00	0.06	0.75	0.81	7	0.02	0.01	5.2	4.5	4.5	---	---	---	---	---
S79FL-065-002-8	168-188	Bt1	0.59	0.14	0.03	0.05	0.81	5.35	6.16	13	0.06	0.02	5.0	4.2	4.2	---	---	---	0.21	0.29
S79FL-065-002-9	188-203	Bt2	0.41	0.36	0.03	0.08	0.88	6.23	7.11	12	0.06	0.02	5.1	3.9	4.1	---	---	---	0.30	0.35
Bonifay fine sand: 2/																				
S79FL-065-007-1	0-20	Ap	0.95	0.06	0.02	0.12	1.15	4.82	5.97	19	0.80	0.03	4.7	4.4	4.1	---	---	---	---	---
S79FL-065-007-2	20-46	E1	0.28	0.06	0.01	0.09	0.44	3.28	3.72	12	0.24	0.02	5.3	4.6	4.5	---	---	---	---	---
S79FL-065-007-3	46-76	E2	0.23	0.06	0.02	0.05	0.36	2.14	2.50	14	0.09	0.02	5.1	4.6	4.5	---	---	---	---	---
S79FL-065-007-4	76-122	E3	0.21	0.06	0.01	0.03	0.31	1.40	1.71	18	0.09	0.02	5.1	4.6	4.5	---	---	---	---	---
S79FL-065-007-5	122-132	Bt	1.07	0.40	0.01	0.25	1.73	2.41	4.14	42	0.09	0.03	5.3	4.7	4.6	---	---	---	0.38	0.48
S79FL-065-007-6	132-150	Btv	1.60	0.32	0.01	0.23	2.16	4.15	6.31	34	0.07	0.04	5.3	4.9	4.9	---	---	---	0.62	0.57
S79FL-065-007-7	150-203	B't	0.20	0.41	0.00	0.04	0.65	11.64	12.29	5	0.09	0.02	4.8	4.1	3.9	---	---	---	0.46	1.75

See footnotes at end of table.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	$CaCl_2$ 0.1m (1:2)	Kcl in (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate dithionite extractable: Fe	Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Chaires fine sand: 2/																				
S81FL-065-027-1	0-20	A	0.23	0.11	0.01	0.01	0.36	4.21	4.57	8	0.75	0.03	4.5	3.5	3.4	---	---	---	---	---
S81FL-065-027-2	20-74	E	0.05	0.03	0.02	0.00	0.10	0.88	0.98	10	0.07	0.03	5.3	3.9	3.8	---	---	---	---	---
S81FL-065-027-3	74-86	Bh1	0.03	0.02	0.03	0.01	0.09	10.57	10.66	1	1.08	0.03	4.6	3.6	3.8	0.65	0.01	0.15	0.03	0.07
S81FL-065-027-4	86-122	Bh2	0.02	0.01	0.01	0.00	0.04	8.95	8.99	---	0.64	0.03	4.8	4.0	4.0	0.34	0.01	0.13	0.02	0.10
S81FL-065-027-5	122-132	Bh3	0.03	0.01	0.05	0.00	0.09	10.23	10.32	1	0.85	0.04	4.7	4.1	4.1	0.85	0.01	0.19	0.03	0.12
S81FL-065-027-6	132-140	Btg1	0.18	0.02	0.01	0.01	0.22	5.92	6.14	4	0.26	0.02	4.7	4.0	4.2	---	---	---	0.02	0.07
S81FL-065-027-7	140-203	Btg2	32.50	0.11	0.01	0.02	32.64	7.76	40.40	81	0.24	0.03	4.9	4.0	4.1	---	---	---	0.04	0.07
Chiefland fine sand: 2/																				
S82FL-065-032-1	0-18	Ap	1.55	0.18	0.02	0.01	1.76	1.30	3.06	58	0.49	0.04	5.8	5.4	5.4	---	---	---	---	---
S82FL-065-032-2	18-64	E	0.11	0.02	0.01	0.00	0.14	0.13	0.27	52	0.04	0.01	6.0	5.2	5.2	---	---	---	---	---
S82FL-065-032-3	64-81	Bt	4.72	3.78	0.06	0.04	8.60	2.93	11.53	75	0.60	0.09	6.9	6.4	6.4	---	---	---	0.49	0.11
S82FL-065-032-4	81-124	Cr	6.77	3.83	0.04	0.01	10.65	0.24	10.89	98	0.25	0.19	8.1	7.3	7.4	---	---	---	---	---
Cowarts loamy sand: 4/																				
S79FL-065-006-1	0-18	Ap	0.82	0.14	0.04	0.10	1.10	7.22	8.32	13	1.14	0.02	5.8	4.8	4.5	---	---	---	---	---
S79FL-065-006-2	18-28	E	0.40	0.10	0.03	0.07	0.60	4.35	4.95	12	0.34	0.01	5.6	4.4	4.4	---	---	---	---	---
S79FL-065-006-3	28-43	Bt1	0.45	0.11	0.02	0.10	0.68	5.95	6.63	10	0.34	0.02	5.2	4.2	4.3	---	---	---	0.64	0.62
S79FL-065-006-4	43-76	Bt2	0.87	0.30	0.02	0.07	1.26	6.02	7.28	17	0.20	0.02	5.1	4.3	4.3	---	---	---	0.88	0.71
S79FL-065-006-5	76-140	C1	0.47	0.25	0.02	0.03	0.77	4.21	4.98	15	0.08	0.01	5.1	4.3	4.2	---	---	---	---	---
S79FL-065-006-6	140-203	C2	0.09	0.15	0.02	0.01	0.27	3.81	4.08	7	0.05	0.01	5.1	4.2	4.2	---	---	---	---	---
Dothan loamy fine sand: 2/																				
S79FL-065-008-1	0-23	Ap	0.95	0.27	0.00	0.10	1.32	4.41	5.73	23	0.92	0.02	5.4	4.7	4.6	---	---	---	---	---
S79FL-065-008-2	23-43	Bt1	0.77	0.19	0.04	0.08	1.08	4.41	5.49	20	0.29	0.03	5.2	4.4	4.4	---	---	---	0.43	0.59
S79FL-065-008-3	43-84	Bt2	1.95	0.47	0.00	0.05	2.47	5.10	7.57	33	0.24	0.02	5.3	5.0	5.0	---	---	---	0.81	0.84
S79FL-065-008-4	84-124	Bt2	2.32	0.28	0.00	0.02	2.62	5.18	7.80	34	0.16	0.01	5.6	5.4	5.3	---	---	---	0.10	0.99
S79FL-065-008-5	124-157	Btv1	1.72	0.30	0.00	0.02	2.04	4.37	6.41	32	0.08	0.01	5.8	5.6	5.4	---	---	---	0.10	0.82
S79FL-065-008-6	157-203	Btv2	0.60	0.24	0.00	0.03	0.87	7.83	8.70	10	0.09	0.01	5.1	4.3	4.3	---	---	---	0.38	1.14

See footnotes at end of table.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	$CaCl_2$ 0.1m (1:2)	Kcl in (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate dithionite extractable: Fe	Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Fuquay loamy sand: 5/																				
S79FL-065-004-1	0-20	Ap	0.99	0.25	0.04	0.14	1.42	5.56	6.98	20	0.83	0.02	5.6	4.8	4.7	---	---	---	---	---
S79FL-065-004-2	20-66	E	0.11	0.07	0.02	0.01	0.21	3.48	3.69	6	0.29	0.02	5.1	4.2	4.4	---	---	---	---	---
S79FL-065-004-3	66-86	EB	0.10	0.11	0.01	0.02	0.24	5.22	5.46	4	0.25	0.02	4.7	4.1	4.2	---	---	---	---	---
S79FL-065-004-4	86-104	Btv1	0.27	0.21	0.01	0.03	0.52	4.96	5.48	9	0.22	0.02	4.9	4.2	4.2	---	---	---	0.44	0.35
S79FL-065-004-5	104-130	Btv2	0.52	0.19	0.01	0.02	0.74	7.50	8.24	9	0.17	0.02	5.0	4.2	4.0	---	---	---	0.79	0.71
S79FL-065-004-6	130-203	Bt	0.14	0.13	0.01	0.01	0.29	6.43	6.72	4	0.11	0.01	4.7	4.1	4.1	---	---	---	0.83	0.49
Lakeland sand: 2/																				
S81FL-065-017-1	0-20	Ap	0.22	0.06	0.03	0.02	0.33	10.94	11.27	3	1.96	0.04	5.3	4.5	4.2	---	---	---	---	---
S81FL-065-017-2	20-41	C1	0.04	0.02	0.02	0.01	0.09	6.89	6.98	1	0.82	0.01	5.3	4.7	4.2	---	---	---	---	---
S81FL-065-017-3	41-56	C2	0.06	0.04	0.02	0.01	0.13	5.62	5.75	2	0.43	0.01	5.4	4.7	4.4	---	---	---	---	---
S81FL-065-017-4	56-102	C3	0.09	0.05	0.02	0.01	0.17	4.48	4.65	4	0.21	0.01	5.5	4.8	4.5	---	---	---	---	---
S81FL-065-017-5	102-203	C4	0.13	0.09	0.02	0.01	0.25	2.85	3.10	8	0.14	0.01	5.5	4.6	4.4	---	---	---	---	---
Leon fine sand: 2/																				
S81FL-065-024-1	0-13	A	1.85	0.29	0.06	0.04	2.24	14.13	16.37	14	2.64	0.07	4.2	3.4	3.2	---	---	---	---	---
S81FL-065-024-2	13-28	E1	0.53	0.06	0.02	0.01	0.62	5.45	6.07	10	0.67	0.02	4.7	3.5	3.4	---	---	---	---	---
S81FL-065-024-3	28-53	E2	0.12	0.03	0.01	0.00	0.16	3.27	3.42	6	0.22	0.02	4.8	4.0	3.9	---	---	---	---	---
S81FL-065-024-4	53-64	Bh1	0.35	0.05	0.03	0.00	0.43	12.87	13.30	3	1.47	0.02	4.7	3.7	3.6	---	0.01	0.12	0.02	0.08
S81FL-065-024-5	64-135	Bh2	0.33	0.02	0.02	0.01	0.38	12.17	12.55	3	1.06	0.02	4.7	3.8	3.8	---	0.01	0.13	0.02	0.08
S81FL-065-024-6	135-145	E'	0.35	0.02	0.05	0.01	0.43	11.93	12.36	3	1.66	0.06	4.5	4.2	4.2	---	---	---	---	---
S81FL-065-024-7	145-203	Bh'	0.13	0.01	0.02	0.00	0.16	12.25	12.41	1	1.39	0.02	4.7	4.4	4.3	---	0.01	0.27	0.02	0.18
Lucy loamy fine sand: 2/																				
S79FL-065-001-1	0-20	Ap	0.87	0.34	0.03	0.17	1.41	5.58	6.99	20	1.12	0.03	5.7	4.3	4.3	---	---	---	---	---
S79FL-065-001-2	20-33	A	0.40	0.09	0.03	0.13	0.65	3.92	4.57	14	0.48	0.02	5.7	4.4	4.3	---	---	---	---	---
S79FL-065-001-3	33-46	E1	0.45	0.11	0.02	0.19	0.77	2.26	3.03	25	0.23	0.02	5.7	4.6	4.5	---	---	---	---	---
S79FL-065-001-4	46-68	E2	0.45	0.11	0.02	0.10	0.68	1.46	2.14	32	0.12	0.02	5.5	4.8	4.7	---	---	---	---	---
S79FL-065-001-5	68-86	EB	0.65	0.16	0.03	0.09	0.93	1.39	2.32	40	0.07	0.02	5.4	4.7	4.6	---	---	---	---	---
S79FL-065-001-6	86-107	Bt1	1.47	0.51	0.03	0.16	2.17	3.12	5.29	41	0.12	0.02	5.4	4.8	4.6	---	---	---	0.46	0.33
S79FL-065-001-7	107-137	Bt2	1.35	0.58	0.03	0.04	2.00	4.38	6.38	31	0.08	0.02	5.2	4.5	4.4	---	---	---	0.55	0.40
S79FL-065-001-8	137-203	Bt3	0.92	0.72	0.03	0.02	1.69	4.18	5.87	29	0.07	0.02	5.1	4.3	4.2	---	---	---	0.60	0.40

See footnotes at end of table.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	$CaCl_2$ 0.1m (1:2)	Kcl in (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate dithionite extractable: Fe	Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Lynchburg loamy fine sand: 6/																				
S81FL-065-028-1	0-23	Ap	0.83	0.32	0.03	0.12	1.30	12.15	13.45	10	2.12	0.04	5.1	4.4	4.4	---	---	---	---	---
S81FL-065-028-2	23-56	Bt	0.08	0.07	0.02	0.01	0.18	3.37	3.55	5	0.16	0.03	5.2	4.3	4.5	---	---	---	0.08	0.06
S81FL-065-028-3	56-104	Btg1	0.04	0.13	0.02	0.01	0.20	4.87	5.07	4	0.08	0.02	5.4	4.2	4.4	---	---	---	0.25	0.07
S81FL-065-028-4	104-152	Btg1	0.07	0.20	0.02	0.01	0.30	4.25	4.55	7	0.02	0.02	5.5	4.2	4.4	---	---	---	0.26	0.06
S81FL-065-028-5	152-203	Btg2	0.14	0.35	0.03	0.01	0.53	5.64	6.17	9	0.05	0.04	5.7	4.2	4.3	---	---	---	0.26	0.06
Mascotte sand: 7/																				
S81FL-065-029-1	0-20	Ap	0.22	0.08	0.03	0.02	0.35	7.09	7.44	5	1.19	0.04	4.6	3.6	3.5	---	---	---	---	---
S81FL-065-029-2	20-25	Bh1	0.10	0.02	0.03	0.01	0.16	11.26	11.42	1	1.38	0.03	5.0	4.1	4.2	0.65	0.01	0.23	0.04	0.14
S81FL-065-029-3	25-41	Bh2	0.04	0.02	0.01	0.00	0.07	14.31	14.38	---	1.02	0.02	4.9	4.5	4.4	0.58	0.01	0.27	0.03	0.27
S81FL-065-029-4	41-66	E	0.03	0.01	0.01	0.00	0.05	4.48	4.53	1	0.19	0.02	5.1	4.6	4.7	---	---	---	---	---
S81FL-065-029-5	66-135	Btg1	0.02	0.04	0.03	0.01	0.10	7.23	7.33	1	0.09	0.02	4.6	4.1	4.1	---	---	---	0.06	0.07
S81FL-065-029-6	135-203	Btg2	0.05	0.06	0.03	0.01	0.15	7.43	7.58	2	0.04	0.02	5.1	4.0	4.1	---	---	---	0.08	0.05
Miccosukee fine sandy loam: 2/																				
S82FL-065-036-1	0-23	Ap	3.79	0.74	0.02	0.25	4.80	17.32	22.12	22	2.72	0.06	5.3	4.7	4.3	---	---	---	---	---
S82FL-065-036-2	23-38	A1	2.55	0.40	0.03	0.16	3.14	29.20	32.34	10	3.53	0.06	5.0	4.4	3.8	---	---	---	---	---
S82FL-065-036-3	38-71	A2	3.00	0.38	0.03	0.07	3.48	28.30	31.78	11	3.54	0.06	5.1	4.4	3.9	---	---	---	---	---
S82FL-065-036-4	71-94	A3	4.21	0.62	0.03	0.05	4.91	27.16	32.07	15	3.68	0.06	5.3	4.6	4.0	---	---	---	---	---
S82FL-065-036-5	94-109	Ab	2.15	0.34	0.02	0.02	2.53	11.48	14.01	18	1.49	0.06	5.4	4.6	4.2	---	---	---	---	---
S82FL-065-036-6	109-127	Btb1	1.80	0.34	0.02	0.02	2.18	7.40	9.58	23	0.37	0.06	5.5	4.7	4.3	---	---	---	0.66	0.12
S82FL-065-036-7	127-165	Btb2	2.99	0.70	0.03	0.04	3.76	5.80	9.56	39	0.21	0.06	5.6	5.0	4.7	---	---	---	1.00	0.14
S82FL-065-036-8	165-203	Btb3	2.34	0.68	0.02	0.04	3.08	8.12	11.20	28	0.15	0.06	5.4	5.0	4.9	---	---	---	1.32	0.12
Nutall fine sand: 2/																				
S82FL-065-037-1	0-10	A	6.16	0.60	0.08	0.08	6.92	14.25	21.17	33	3.58	0.06	4.7	4.1	3.9	---	---	---	---	---
S82FL-065-037-2	10-23	A/E	2.50	0.04	0.03	0.01	2.58	1.78	4.36	59	0.86	0.06	6.2	5.1	5.2	---	---	---	---	---
S82FL-065-037-3	23-33	E1	0.52	0.02	0.03	0.01	0.58	0.53	1.11	52	0.06	0.06	6.8	5.8	5.7	---	---	---	---	---
S82FL-065-037-4	33-43	E2	0.63	0.02	0.02	0.00	0.67	0.39	1.06	63	0.05	0.05	7.3	6.5	6.3	---	---	---	---	---
S82FL-065-037-5	43-76	Btg	24.37	0.24	0.10	0.25	24.96	5.20	30.16	83	0.12	0.06	7.7	6.8	6.5	---	---	---	0.31	0.05
Orangeburg sandy loam: 2/																				
S81FL-065-013-1	0-18	Ap	8.75	1.81	0.03	0.67	11.26	12.28	23.54	48	4.93	0.07	6.2	5.2	5.1	---	---	---	---	---
S81FL-065-013-2	18-86	Bt1	0.75	0.40	0.02	0.34	1.51	8.94	10.45	14	0.35	0.04	5.1	4.2	4.0	---	---	---	1.80	0.26
S81FL-065-013-3	86-152	Bt2	1.07	0.57	0.02	0.05	1.71	8.76	10.47	16	0.18	0.02	5.2	4.3	4.0	---	---	---	2.50	0.27
S81FL-065-013-4	152-203	Bt3	0.15	0.25	0.01	0.03	0.44	9.16	9.60	5	0.07	0.02	4.7	4.1	3.9	---	---	---	2.40	0.28

See footnotes at end of table.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	pH: $CaCl_2$ 0.1m (1:2)	pH: Kcl in (1:1)	Pyrophosphate extractable: C	Pyrophosphate extractable: Fe	Pyrophosphate extractable: Al	Citrate dithionite extractable: Fe	Citrate dithionite extractable: Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Pelham fine sand: 2/																				
S82FL-065-033-1	0-20	Ap	0.42	0.12	0.04	0.03	0.61	9.53	10.14	6	2.02	0.05	4.4	3.8	3.4	---	---	---	---	---
S82FL-065-033-2	20-46	E1	0.10	0.02	0.01	0.01	0.14	5.62	5.76	2	0.84	0.03	5.0	4.4	4.2	---	---	---	---	---
S82FL-065-033-3	46-61	E2	0.03	0.02	0.01	0.01	0.07	3.10	3.17	2	0.40	0.02	5.2	4.5	4.4	---	---	---	---	---
S82FL-065-033-4	61-86	E3	0.02	0.03	0.01	0.01	0.07	2.03	2.10	3	0.16	0.02	4.9	4.4	4.4	---	---	---	---	---
S82FL-065-033-5	86-124	Btg1	0.09	0.14	0.04	0.02	0.29	4.75	5.04	6	0.12	0.03	5.2	4.1	4.0	---	---	---	0.10	0.04
S82FL-065-033-6	124-203	Btg2	0.07	0.07	0.03	0.02	0.19	5.71	5.90	3	0.08	0.03	5.2	4.1	3.8	---	---	---	0.22	0.05
Plummer fine sandy loam: 8/																				
S82FL-065-034-1	0-15	A	0.29	0.08	0.07	0.06	0.50	20.34	20.84	2	3.28	0.06	4.9	4.1	3.7	---	---	---	---	---
S82FL-065-034-2	15-48	Eg1	0.03	0.02	0.02	0.01	0.08	5.38	5.46	1	0.73	0.03	4.7	4.4	3.9	---	---	---	---	---
S82FL-065-034-3	48-71	Eg2	0.01	0.01	0.01	0.00	0.03	2.18	2.21	1	0.21	0.03	4.9	4.9	4.4	---	---	---	---	---
S82FL-065-034-4	71-155	Eg3	0.01	0.01	0.01	0.00	0.03	0.31	0.34	9	0.05	0.01	5.0	4.8	4.6	---	---	---	---	---
S82FL-065-034-5	155-175	Btg1	0.07	0.02	0.02	0.02	0.13	5.09	5.22	2	0.05	0.03	5.5	4.1	4.1	---	---	---	0.05	0.03
S82FL-065-034-6	175-203	Btg2	0.13	0.08	0.02	0.02	0.25	5.48	5.73	4	0.05	0.03	5.4	4.1	3.9	---	---	---	0.41	0.07
Rains fine sandy loam: 2/																				
S82FL-065-035-1	0-18	Ap	4.95	1.11	0.04	0.10	6.20	8.14	14.34	43	2.04	0.06	6.2	5.5	5.2	---	---	---	---	---
S82FL-065-035-2	18-58	Btg1	1.62	0.20	0.03	0.05	1.90	5.38	7.28	26	0.21	0.06	5.1	4.2	3.9	---	---	---	0.18	0.05
S82FL-065-035-3	58-86	Btg2	0.27	0.12	0.03	0.03	0.45	5.71	6.16	7	0.08	0.03	5.0	4.0	3.7	---	---	---	0.29	0.05
S82FL-065-035-4	86-117	Btg3	0.14	0.16	0.03	0.03	0.36	7.79	8.15	4	0.10	0.04	4.7	4.0	3.6	---	---	---	0.75	0.08
S82FL-065-035-5	117-165	Btg4	0.16	0.20	0.03	0.04	0.43	9.05	9.48	5	0.08	0.04	4.6	3.9	3.5	---	---	---	0.98	0.09
S82FL-065-035-6	165-203	Btg4	0.25	0.28	0.03	0.12	0.68	12.58	13.26	5	0.12	0.04	4.7	4.0	3.6	---	---	---	1.26	0.13
Sapelo sand: 9/																				
S81FL-065-026-1	0-23	A	0.05	0.37	0.09	0.07	0.58	16.99	17.57	3	5.49	0.08	4.1	3.3	3.0	---	---	---	---	---
S81FL-065-026-2	23-53	E	0.14	0.02	0.01	0.00	0.17	0.62	0.79	22	0.32	0.02	4.9	3.7	3.6	---	---	---	---	---
S81FL-065-026-3	53-96	Bh	0.10	0.08	0.03	0.01	0.22	14.78	15.00	1	1.69	0.03	3.7	3.3	3.2	1.08	0.01	0.11	0.04	0.08
S81FL-065-026-4	96-109	Bt	0.09	0.06	0.03	0.01	0.19	25.42	25.61	1	2.53	0.04	4.1	3.5	3.5	1.64	0.01	0.21	0.03	0.18
S81FL-065-026-5	109-129	Btg1	0.10	0.07	0.03	0.02	0.22	22.05	22.27	1	1.82	0.03	4.3	3.6	3.7	---	---	---	---	---
S81FL-065-026-6	129-155	Btg2	0.14	0.08	0.03	0.02	0.27	7.38	7.65	4	0.12	0.03	4.7	3.8	3.8	---	---	---	0.04	0.05
S81FL-065-026-7	155-170	Btg3	0.25	0.07	0.05	0.02	0.39	5.56	5.95	7	0.07	0.04	4.9	3.9	4.0	---	---	---	0.43	0.07
S81FL-065-026-8	170-203	Btg4	0.58	0.19	0.04	0.02	0.83	6.22	7.05	12	0.09	0.03	5.0	3.9	3.9	---	---	---	0.09	0.04

See footnotes at end of table.

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	pH: $CaCl_2$ 0.1m (1:2)	pH: Kcl in (1:1)	Pyrophosphate extractable: C	Pyrophosphate extractable: Fe	Pyrophosphate extractable: Al	Citrate dithionite extractable: Fe	Citrate dithionite extractable: Al
	Cm		---Milliequivalents/100 grams of soil---							Pct	Pct	Mmho/cm				Pct	Pct	Pct	Pct	Pct
Surrency fine sand: 2/																				
S81FL-065-019-1	0-28	Ap	0.27	0.16	0.04	0.02	0.49	6.78	7.27	7	1.18	0.04	4.8	3.9	3.7	---	---	---	---	---
S81FL-065-019-2	28-38	A	0.05	0.02	0.01	0.00	0.08	3.17	3.25	2	0.41	0.02	5.1	4.3	4.0	---	---	---	---	---
S81FL-065-019-3	38-66	Eg	0.09	0.03	0.01	0.00	0.13	1.67	1.80	7	0.19	0.01	5.2	4.5	4.0	---	---	---	---	---
S81FL-065-019-4	66-99	Btg1	0.63	0.17	0.05	0.01	0.86	6.06	6.92	12	0.28	0.02	4.9	4.0	3.9	---	---	---	0.07	0.08
S81FL-065-019-5	99-150	Btg2	1.25	0.38	0.04	0.02	1.69	8.20	9.89	17	0.19	0.01	4.9	4.0	3.8	---	---	---	0.09	0.09
S81FL-065-019-6	150-203	Btg3	3.00	1.40	0.05	0.04	4.49	8.22	12.71	35	0.11	0.02	5.1	4.2	3.9	---	---	---	0.05	0.08
Tifton loamy fine sand: 10/																				
S82FL-065-030-1	0-15	Ap	1.50	0.33	0.03	0.09	1.95	8.60	10.55	18	1.61	0.05	5.5	4.7	4.4	---	---	---	---	---
S82FL-065-030-2	15-25	Btc1	0.37	0.25	0.03	0.02	0.67	6.43	7.10	9	0.93	0.04	5.1	4.4	4.1	---	---	---	---	---
S82FL-065-030-3	25-64	Btc2	1.21	0.49	0.05	0.02	1.77	6.89	8.66	20	0.25	0.03	5.2	4.5	4.5	---	---	---	1.20	0.28
S82FL-065-030-4	64-99	Btc2	0.43	0.27	0.04	0.02	0.76	8.52	9.28	8	0.11	0.01	5.2	4.3	4.3	---	---	---	2.24	0.42
S82FL-065-030-5	99-132	Btvc	0.15	0.21	0.04	0.01	0.41	8.48	8.89	5	0.06	0.01	5.0	4.2	4.1	---	---	---	2.36	0.42
S82FL-065-030-6	132-165	Btv1	0.14	0.38	0.06	0.01	0.59	8.44	9.03	7	0.06	0.02	5.0	4.2	4.1	---	---	---	2.59	0.34
S82FL-065-030-7	165-203	Btv2	0.20	0.44	0.03	0.01	0.68	9.37	10.05	7	0.04	0.02	4.9	4.1	4.1	---	---	---	2.08	0.23
Tooles fine sand: 2/																				
S82FL-065-038-1	0-13	A	4.65	0.39	0.09	0.05	5.18	12.72	17.90	29	3.42	0.06	4.7	3.9	3.8	---	---	---	---	---
S82FL-065-038-2	13-23	A/E	2.44	0.06	0.05	0.02	2.57	1.85	4.42	58	0.50	0.06	6.1	5.1	5.4	---	---	---	---	---
S82FL-065-038-3	23-43	E1	0.46	0.02	0.02	0.00	0.50	0.42	0.92	54	0.10	0.06	7.0	6.1	6.0	---	---	---	---	---
S82FL-065-038-4	43-81	E2	0.98	0.02	0.02	0.00	1.02	0.48	1.50	68	0.08	0.06	7.1	6.6	6.5	---	---	---	---	---
S82FL-065-038-5	81-117	Btg	27.06	0.29	0.09	0.28	27.72	6.31	34.03	81	0.12	0.06	7.8	7.1	6.6	---	---	---	0.21	0.32
Troup fine sand: 2/																				
S79FL-065-003-1	0-20	Ap	0.99	0.19	0.03	0.10	1.31	4.82	6.13	21	0.81	0.02	5.6	4.6	4.6	---	---	---	---	---
S79FL-065-003-2	20-53	E1	0.44	0.06	0.03	0.03	0.56	2.48	3.04	18	0.18	0.02	5.5	4.7	4.6	---	---	---	---	---
S79FL-065-003-3	53-109	E2	0.21	0.06	0.03	0.02	0.32	1.94	2.26	14	0.15	0.01	5.3	4.4	4.5	---	---	---	---	---
S79FL-065-003-4	109-124	Bt1	0.74	0.40	0.03	0.04	1.21	3.75	4.96	24	0.08	0.02	5.2	4.4	4.4	---	---	---	0.45	0.30
S79FL-065-003-5	124-142	Bt2	0.59	0.41	0.03	0.04	1.07	5.09	6.16	17	0.10	0.02	5.1	4.2	4.3	---	---	---	0.59	0.39
S79FL-065-003-6	142-203	Bt3	0.09	0.36	0.02	0.02	0.49	6.03	6.52	8	0.08	0.01	5.1	4.1	4.2	---	---	---	0.78	0.46

TABLE 18.--CHEMICAL ANAYLSES OF SELECTED SOILS--Continued

1/ Albany sand: 1 mile east of Thomas City and 0.25 mile north of the unpaved road at 400 Club, SE1/4NW1/4 sec. 32, T. 1 S., R. 4 E.

2/ Typical pedon for the series. See the section "Soil Series and Their Morphology" for location of pedon.

3/ Blanton fine sand: About 0.5 mile south of U.S. Highway 90 and 100 feet east of Old Tung Grove Road, NW1/4NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

4/ Cowarts loamy fine sand: 2.25 miles south of Georgia State line and 0.25 mile east of County Road 149, NE1/4SW1/4SE1/4 sec. 28, T. 3 N., R. 5 E.

5/ Fuquay fine sand: 1.8 miles west of County Road 59 and 50 feet north of the unpaved road that crosses into Leon County, SE1/4SW1/4SE1/4 sec. 29, T. 1 N., R. 3 E.

6/ Lynchburg loamy fine sand: 200 yards north of County Road 149A, NE1/4SW1/4NE1/4 sec. 8, T. 2 N., R. 5 E.

7/ Mascotte sand: SE1/4SW1/4NE1/4 sec. 25, T. 1 S., R. 4 E.

8/ Plummer fine sandy loam: Mays Pond Plantation, NE1/4SW1/4 sec. 16, T. 2 N., R. 4 E.

9/ Sapelo sand: 0.8 mile south of U.S. Highway 19 and 0.5 mile west of County Road 257, SW1/4NE1/4NE1/4 sec. 28, T. 1 S., R. 5 E.

10/ Tifton loamy fine sand: Near Lake Fontaine, NW1/4 sec 15, T. 3 N.

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Clay minerals			
			Montmorillonite	14-Angstrom intergrade	Kaolinite	Quartz
	Cm		Pct	Pct	Pct	Pct
Albany fine sand: 1/						
S81FL-065-021-1	0-18	Ap	14	40	21	25
S81FL-065-021-3	43-89	E2	12	43	25	20
S81FL-065-021-6	162-201	Bt2	14	15	61	10
Alpin fine sand: 2/						
S81FL-065-009-1	0-10	A	0	46	31	23
S81FL-065-009-3	51-102	E2	0	46	34	20
S81FL-065-009-5	119-203	E/B	0	30	37	33
Blanton fine sand: 3/						
S79FL-065-002-1	0-23	Ap	14	42	21	23
S79FL-065-002-4	53-68	E2	31	33	22	14
S79FL-065-002-8	168-188	Bt1	4	37	44	15
S79FL-065-002-9	188-203	Bt2	5	36	53	6
Bonifay fine sand: 2/						
S79FL-065-007-1	0-20	Ap	0	51	20	29
S79FL-065-007-3	46-76	E2	0	57	32	11
S79FL-065-007-5	122-132	Bt	0	40	50	10
S79FL-065-007-7	150-203	B't	0	15	85	0
Chaires fine sand: 2/						
S81FL-065-027-1	0-20	A	20	10	14	56
S81FL-065-027-3	74-86	Bh1	22	20	15	43
S81FL-065-027-7	140-203	Btg2	0	17	54	29
Chiefland fine sand: 2/						
S82FL-065-032-1	0-18	Ap	44	27	15	14
S82FL-065-032-3	64-81	Bt	38	31	25	6
S82FL-065-032-4	81-124	Cr	44	30	21	5
Cowarts loamy sand: 4/						
S79FL-065-006-1	0-18	Ap	0	17	80	3
S79FL-065-006-3	28-43	Bt1	0	14	84	2
S79FL-065-006-4	43-76	Bt2	0	10	90	0
S79FL-065-006-6	140-203	C2	0	8	90	2
Dothan loamy fine sand: 2/						
S79FL-065-008-1	0-23	Ap	0	35	49	16
S79FL-065-008-2	23-43	Bt1	0	39	56	5
S79FL-065-008-3	43-84	Bt2	0	26	72	2
S79FL-065-008-6	157-203	Bt	0	16	79	5
Fuquay loamy sand: 5/						
S79FL-065-004-1	0-20	Ap	8	33	40	19
S79FL-065-004-4	86-104	Btv1	5	29	65	1
S79FL-065-004-6	130-203	Bt	5	10	83	2
Lakeland sand: 2/						
S81FL-065-017-1	0-20	Ap	0	57	25	18
S81FL-065-017-4	56-102	C3	0	62	23	15
S81FL-065-017-5	102-203	C4	0	50	23	27
Leon fine sand: 2/						
S81FL-065-024-1	0-13	A	0	7	12	81
S81FL-065-024-4	53-64	Bh1	46	27	10	17
S81FL-065-024-5	145-203	Bh'	45	0	46	9

See footnotes at end of table.

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Clay minerals: Montmorillonite	Clay minerals: 14-Angstrom intergrade	Clay minerals: Kaolinite	Clay minerals: Quartz
	Cm		Pct	Pct	Pct	Pct
Lucy loamy fine sand: 2/						
S79FL-065-001-1	0-20	Ap	5	35	47	13
S79FL-065-001-4	46-68	E2	24	28	42	6
S79FL-065-001-7	107-137	Bt2	26	12	58	4
S79FL-065-001-8	137-203	Bt3	7	23	66	4
Lynchburg loamy fine sand: 6/						
S81FL-065-028-1	0-23	Ap	0	35	52	13
S81FL-065-028-3	56-104	Btg1	0	21	74	5
S81FL-065-028-5	152-203	Btg2	0	17	79	4
Mascotte sand: 7/						
S81FL-065-029-1	0-20	Ap	41	0	39	20
S81FL-065-029-2	20-25	Bh1	0	35	40	25
S81FL-065-029-5	66-135	Btg1	0	17	77	6
Miccosukee fine sandy loam: 8/						
S82FL-065-036-1	0-23	Ap	0	26	68	6
S82FL-065-036-7	127-165	Btb2	0	16	79	5
S82FL-065-036-8	165-203	Btb3	5	14	76	5
Nutall fine sand: 2/						
S82FL-065-037-1	0-10	Ap	0	25	10	65
S82FL-065-037-5	43-76	Btg	84	10	1	5
Orangeburg sandy loam: 2/						
S81FL-065-013-1	0-18	Ap	0	29	60	11
S81FL-065-013-2	18-86	Bt1	0	29	61	10
S81FL-065-013-4	152-203	Bt3	0	18	77	5
Pelham fine sand: 2/						
S82FL-065-033-1	0-20	Ap	15	48	24	13
S82FL-065-033-5	86-124	Btg1	7	36	50	7
S82FL-065-033-6	124-203	Btg2	11	27	58	4
Plummer fine sandy loam: 8/						
S82FL-065-034-1	0-15	A	0	48	42	10
S82FL-065-034-5	155-175	Btg1	10	42	36	12
S82FL-065-034-6	175-203	Btg2	12	29	54	5
Rains fine sandy loam: 2/						
S82FL-065-034-1	0-18	Ap	0	29	67	4
S82FL-065-034-3	58-86	Btg2	15	15	66	4
S82FL-065-034-5	117-165	Btg4	11	11	74	4
Sapelo sand: 9/						
S81FL-065-026-1	0-23	A	25	11	42	22
S81FL-065-026-3	53-96	Bh	26	14	45	15
S81FL-065-026-6	129-155	Btg2	40	0	54	6
S81FL-065-026-8	170-203	Btg4	41	0	54	5
Surrency fine sand: 2/						
S81FL-065-019-1	0-28	Ap	0	21	22	57
S81FL-065-019-4	66-99	Btg1	12	33	46	9
S81FL-065-019-6	150-203	Btg3	7	9	75	9

See footnotes at end of table.

TABLE 19.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Clay minerals			
			Montmorillonite	14-Angstrom intergrade	Kaolinite	Quartz
	Cm		Pct	Pct	Pct	Pct
Tifton loamy fine sand: 10/						
S82FL-065-030-1	0-15	Ap	0	45	47	8
S82FL-065-030-3	25-64	Btc2	0	34	60	6
S82FL-065-030-5	99-132	Btvc	0	18	78	4
S82FL-065-030-7	165-203	Btv2	0	15	80	5
Tooles fine sand: 2/						
S82FL-065-038-1	0-13	A	31	11	9	49
S82FL-065-038-5	81-117	Btg	95	0	1	4
Troup fine sand: 2/						
S79FL-065-003-1	0-20	Ap	16	34	39	11
S79FL-065-003-3	33-109	E2	27	31	35	7
S79FL-065-003-4	109-124	Bt1	11	23	61	5
S79FL-065-003-6	142-203	Bt3	4	17	72	7

1/ Albany sand: 1 mile east of Thomas City and 0.25 mile north of the unpaved road at 400 Club, SE1/4NW1/4 sec. 32, T. 1 S. R. 4 E.

2/ Typical pedon for the series. See the section "Soil Series and Their Morphology" for location of pedon.

3/ Blanton fine sand: about 0.5 mile south of U.S. Highway 90 and 100 feet east of Old Tung Grove Road, NW1/4NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

4/ Cowarts loamy fine sand: 2.25 miles south of Georgia State line and 0.25 mile east of County Road 149, NE1/4SW1/4SE1/4 sec. 28, T. 3 N., R. 5 E.

5/ Fuquay fine sand: 1.8 miles west of County Road 59 and 50 feet north of the unpaved road that crosses into Leon County, SE1/4SW1/4SE1/4 sec. 29, T. 1 N., R. 3 E.

6/ Lynchburg loamy fine sand: 200 yards north of County Road 149A, NE1/4SW1/4NE1/4 sec. 8, T. 2 N., R. 5 E.

7/ Mascotte sand: SE1/4SW1/4NE1/4 sec. 25, T. 1 S., R. 4 E.

8/ Plummer fine sandy loam: Mays Pond Plantation, NE1/4SW1/4 sec. 16, T. 2 N., R. 4 E.

9/ Sapelo sand: 0.8 mile south of U.S. Highway 19 and 0.5 mile west of County Road 257, SW1/4NE1/4NE1/4 sec. 28, T. 1 S., R. 5 E.

10/ Tifton loamy fine sand: Near Lake Fountaine, NW1/4 sec. 15, T. 3 N.

TABLE 20.--ENGINEERING INDEX TEST DATA

[Tests performed by the Florida Department of Transportation (FDOT) in cooperation with the U.S. Bureau of Public Roads, in accordance with standard procedures of the American Association of State Highway and Transportation Officials (AASHTO). NP means nonplastic]

Soil name, report number, horizon, and depth in inches	FDOT report number	Classification		Mechanical analysis								Liquid limit	Plasticity index	Moisture density	
		AASHTO	Unified	Percentage smaller than--				Percentage smaller than--						Maximum dry density	Optimum moisture
				No. 4	No. 10	No. 40	No. 200	.05 mm	.02 mm	.005 mm	.002 mm				
												Pct		Lb/ft^3	Pct
Albany fine sand: 1/															
S81FL-065-021															
E2 - - - - - 17-35	32	A-2-4(0)	SM	100	100	93	20	11	6	3	2	---	NP	115	10
Bt1 - - - - - 64-79	33	A-2-6(1)	SC	100	100	94	33	31	25	23	23	32	16	116	13
Alpin fine sand: 2/															
S81FL-065-009															
E2 - - - - - 20-40	17	A-2-4(0)	SM	100	100	96	13	10	5	4	3	---	NP	110	12
E/B - - - - - 47-80	18	A-2-4(0)	SM	100	100	96	14	10	5	3	3	---	NP	109	9
Blanton fine sand: 3/															
S79FL-065-002															
E3 - - - - - 30-48	3	A-2-4(0)	SM	100	100	96	14	9	5	3	2	---	NP	110	11
Bt2 - - - - - 59-80	4	A-2-4(0)	SC	100	100	97	23	18	13	12	11	---	NP	117	12
Bonifay fine sand: 2/															
S79FL-065-007															
E3 - - - - - 30-48	13	A-2-4(0)	SM	100	100	96	14	11	5	3	2	---	NP	112	11
B't - - - - - 59-80	14	A-7-6(10)	CL	100	100	97	58	44	47	39	37	47	20	99	12
Chaires fine sand: 2/															
S81FL-065-027															
E - - - - - 8-29	39	A-2-4(0)	SP-SM	100	100	96	11	8	3	1	1	---	NP	105	14
Cowarts loamy fine sand: 4/															
S79FL-065-006															
Bt2 - - - - 17-30	11	A-7-6(8)	SC	100	100	95	48	47	44	41	40	43	25	104	19
C - - - - - 30-80	12	A-6	SC	100	100	94	40	38	36	33	31	34	16	109	15
Dothan loamy fine sand: 2/															
S79FL-065-008															
Bt2 - - - - 17-49	15	A-6(4)	SC	100	100	96	44	41	36	30	27	34	19	110	16
Btv2 - - - - 62-80	16	A-6(3)	SC	100	100	96	45	41	34	27	24	34	13	109	17

See footnotes at end of table.

TABLE 20.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	FDOT report number	Classification		Mechanical analysis								Liquid limit	Plasticity index	Moisture density	
		AASHTO	Unified	Percentage smaller than--				Percentage smaller than--						Maximum dry density	Optimum moisture
				No. 4	No. 10	No. 40	No. 200	.05 mm	.02 mm	.005 mm	.002 mm				
												Pct		Lb/ft^3	Pct
Fuquay loamy sand: 5/															
S79FL-065-004															
E1 - - - - - - 8-26	7	A-2-4(0)	SM	100	100	86	20	16	11	8	7	---	NP	121	9
Btv3 - - - - 51-80	8	A-6(3)	SC	100	100	87	45	42	38	34	31	38	16	110	17
Lakeland sand: 2/															
S81FL-065-017															
C4 - - - - - - 40-80	28	A-2-4(0)	SP-SM	100	100	94	11	9	5	3	3	---	NP	112	10
Leon fine sand: 2/															
S81FL-065-024															
E2 - - - - - - 11-21	36	A-3(0)	SP-SM	100	100	100	8	6	3	1	0	---	NP	99	15
Lucy loamy fine sand: 2/															
S79FL-065-001															
E2 - - - - - - 18-27	1	A-2-4(0)	SM	100	100	97	21	15	11	6	5	---	NP	115	10
Bt2 - - - - 54-80	2	A-2-6(1)	SC	100	100	97	35	31	26	24	24	30	14	115	13
Lynchburg loamy fine sand: 6/															
S81FL-065-028															
Btg2 - - - - 22-60	40	A-2-4(0)	SC	100	100	98	35	28	22	18	17	24	10	117	11
Miccosukee fine sandy loam: 2/															
S82FL-065-036															
Btb2 - - - - 50-65	45	A-6(7)	CL	100	100	98	57	56	50	42	39	31	18	112	15
Nutall fine sand: 2/															
S82FL-065-037															
Btg - - - - - - 17-30	46	A-2-6(1)	SC	100	100	99	31	30	26	25	23	35	19	109	15
Orangeburg sandy loam: 2/															
S81FL-065-013															
Bt3 - - - - 60-80	23	A-2-6(1)	SC	100	100	83	31	29	27	24	23	36	19	106	14

See footnotes at end of table.

TABLE 20.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	FDOT report number	Classification		Mechanical analysis								Liquid limit	Plasticity index	Moisture density	
		AASHTO	Unified	Percentage smaller than--				Percentage smaller than--						Maximum dry density	Optimum moisture
				No. 4	No. 10	No. 40	No. 200	.05 mm	.02 mm	.005 mm	.002 mm				
												Pct		Lb/ft^3	Pct
Rains fine sandy loam: 2/															
S81FL-065-035															
Btg4 - - - - 46-80	44	A-7-6(23)	CH	100	100	98	71	68	62	59	57	57	32	96	23
Sapelo fine sand: 7/															
S81FL-065-026															
E - - - - - - - 9-21	38	A-3(0)	SP-SM	100	100	87	9	6	3	1	1	---	NP	105	13
Surrency fine sand: 2/															
S81FL-065-019															
Btg2 - - - - 39-59	30	A-6(1)	SC	100	100	97	37	32	28	26	25	30	14	113	15
Tooles fine sand: 2/															
S82FL-065-038															
Btg - - - - - 32-46	47	A-2-6(1)	SC	100	100	99	31	29	27	24	23	36	19	109	14
Troup fine sand: 2/															
S79FL-065-003															
E2 - - - - - 21-43	5	A-2-4(0)	SM	100	100	97	21	14	7	6	5	---	NP	114	9
Bt3 - - - - - 56-80	6	A-6(1)	SC	100	100	98	39	34	29	27	26	30	13	113	14

1/ Albany sand: 1 mile east of Thomas City and 0.25 mile north of the unpaved road at 400 Club, SE1/4NW1/4 sec. 32, T. 1 S., R. 4 E.

2/ Typical pedon for the series. See the section "Soil Series and Their Morphology" for location of pedon.

3/ Blanton fine sand: about 0.5 mile south of U.S. Highway 90 and 100 feet east of Old Tung Grove Road, NW1/4NE1/4SW1/4 sec. 4, T. 1 N., R. 3 E.

4/ Cowarts loamy fine sand: 2.25 miles south of Georgia State line and 0.25 mile east of County Road 149, NE1/4SW1/4SE1/4 sec. 28, T. 3 N., R. 5 E.

5/ Fuquay fine sand: 1.8 miles west of County Road 59 and 50 feet north of the unpaved road that crosses into Leon County, SE1/4SW1/4SE1/4 sec. 29, T. 1 N., R. 3 E.

6/ Lynchburg loamy fine sand: 200 yards north of County Road 149A, NE1/4SW1/4NE1/4 sec. 8, T. 2 N., R. 5 E.

7/ Sapelo fine sand: 0.8 mile south of U.S. Highway 19 and 0.5 mile west of County Road 257, SW1/4NE1/4NE1/4 sec. 28, T. 1 S., R. 5 E.

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Alpin	Thermic, coated Typic Quartzipsamments
Bayvi	Sandy, siliceous, thermic Cumulic Haplaquolls
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonifay	Loamy, siliceous, thermic Grossarenic Plinthic Paleudults
Byars	Clayey, kaolinitic, thermic Umbric Paleaquults
Chaires	Sandy, siliceous, thermic Alfic Haplaquods
*Chiefland	Loamy, siliceous, thermic Arenic Hapludalfs
Chipley	Thermic, coated Aquic Quartzipsamments
Cowarts	Fine-loamy, siliceous, thermic Typic Hapludults
Dorovan	Dysic, thermic Typic Medisaprists
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Lakeland	Thermic, coated Typic Quartzipsamments
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
Miccosukee	Fine-loamy, siliceous, thermic Cumulic Haplumbrepts
Mascotte	Sandy, siliceous, thermic Ultic Haplaquods
Nutall	Fine-loamy, siliceous, thermic Mollic Albaqualfs
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Ortega	Thermic, uncoated Typic Quartzipsamments
Pamlico	Sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists
*Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Plummer	Loamy, siliceous, thermic Grossarenic Paleaquults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Rutlege	Sandy, siliceous, thermic Typic Humaquepts
Sapelo	Sandy, siliceous, thermic Ultic Haplaquods
*Surrency	Loamy, siliceous, thermic Arenic Umbric Paleaquults
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
Tooles	Loamy, siliceous, thermic Arenic Albaqualfs
Troup	Loamy, siliceous, thermic Grossarenic Paleudults

* 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.

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